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AFOEHL REPORT 90-008EQ00032AHH



**Wastewater Characterization and Hazardous
Waste Technical Assistance Survey,
Bergstrom AFB TX**

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MAR 12 1990
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January 1990

Final Report

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**AF Occupational and Environmental Health Laboratory (AFSC)
Human Systems Division
Brooks Air Force Base, Texas 78235-5501**

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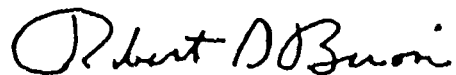
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the removal of wastes in the POL underground storage tanks. (7) Remove, analyze, and properly dispose of oil contaminated soil from accumulation sites. (8) Move indoors or secure, cover, and berm the aluminum sign reconditioning tank at 67 CES Protective Coating. (9) Connect 67 CRS Test Cell floor drains to the sanitary sewer. (10) Discontinue using the underground tank at 67 EMS Wheel and Tire for storing waste solvents. (11) Consider using an alternate stripping method such as sodium bicarbonate blasting or plastic media blasting at 319 FMS Corrosion Control. (12) Lock and log waste storage containers. (13) Provide inputs by the BEE and DRMO during hazardous waste training sessions. (14) Upgrade accumulation sites to prevent the occurrence of environmental pollution incidents. (15) Use a milder soap than aircraft soap for cleaning floors and equipment. (16) Use an alternate absorbent material rather than Speedy Dry. (17) Consider disposing lead-acid batteries wet rather than neutralizing the electrolyte. (18) Recycle cleaning rags rather than disposing them after one use. (19) Ensure all accumulation site managers receive hazardous waste training before assuming the position.

67 Civil Engineering Squadron

67 Combat Repair Squadron

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The author greatly appreciates the technical assistance and hardwork provided by the other members of our survey team, Lt Col Robert D. Binovi, Maj Elliot K. Ng, 1Lt Anthony T. Zimmer, 2Lt Shelia P. Scott, MSgt Benjamin Hernandez, SSgt Mary M. Fields, SSgt Pietro La Porta, Sgt Harold D. Casey, and Sgt Robert P. Davis, without whose valuable assistance this survey could never have been accomplished.

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CONTENTS

	Page
DD Form 1473	i
Acknowledgment	iii
Illustrations	v
 I. INTRODUCTION	 1
II. DISCUSSION	1
A. Base Description	1
B. Sewerage System	1
C. Discharge Limitations	1
III. PROCEDURES	3
A. Wastewater Characterization Survey	3
B. Hazardous Waste Survey	7
IV. RESULTS AND DISCUSSION	8
A. Wastewater Characterization Survey	8
B. Hazardous Waste Program	13
V. DESCRIPTION OF INDUSTRIAL ACTIVITIES	14
VI. SUMMARY OF GENERAL WASTE DISPOSAL PRACTICES	27
VII. FINDINGS, OBSERVATIONS AND CONCLUSIONS	28
A. Wastewater Characterization Survey	28
B. Hazardous Waste Survey	29
VIII. RECOMMENDATIONS	31
A. Wastewater Characterization Survey	31
B. Hazardous Waste Survey	31
References	34
Appendix	
A Request Letter	35
B City of Austin Ordinance No. 82 1209-F	39
C Chemical Disposal Survey Form	69
D Summary of Waste Disposal Practices for Each Waste Category	79
E Waste Disposal As Hazardous Waste at Bergstrom AFB	85
F Wastewater Characterization Analytical Results	89
G Bergstrom AFB Waste Analysis Plan	99
H Bergstrom AFB Hazardous Waste Training Program	107
I Hazardous Waste Turn-In Procedures	113
J Master List of Shops	119
K Summary of Waste Disposal Practices by Shop	123
Distribution List	131

ILLUSTRATIONS

Table	Title	Page
1	Discharge Limitations	2
2	Sample Site Identification	3
3	Analyses and Preservation Methods	4
4	Site/Analysis Summary	6
5	Annual Forecasted Quantities for Waste Categories at Bergstrom AFB TX	8
6	Example Hazardous Waste Disposal Log	32

Figure

1	Hazardous Waste Accumulation Site	13
2	67 CES Power Production Accumulation Site	14
3	67 CES Protective Coating Brush Cleaning Area	15
4	67 CES Protective Coating Stripping Vat	16
5	67 CRS Fuel System Repair Fuel Bowser	17
6	67 CSG Auto Hobby Shop Waste Oil Storage Tanks	18
7	67 EMS AGE Temporary Nonhazardous Waste Storage Area	20
8	67 TRANS Heavy Vehicle Maintenance Accumulation Area	21
9	67 TRANS Vehicle Maintenance Waste Oil Storage Area	22
10	924 AGE Waste Oil Storage Area	24
11	67 TRW Regional Corrosion Control Stripping Operations	25
12	67 Hosp Thermal Inactivation Unit	26
13	Waste Oil Storage Tank	30

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I. INTRODUCTION

On 25 August 1988, Bergstrom Air Force Base (BAFB), Texas requested through HQ TAC/DEEV that the AF Occupational and Environmental Health Laboratory (AFOEHL) perform a wastewater characterization and hazardous waste survey (Appendix A). Base personnel were particularly concerned about increased levels of biochemical oxygen demand (BOD), chemical oxygen demand (COD), and total suspended solids (TSS) measured in the base effluent.

Lt Col Robert D. Binovi, 2Lt Nancy S. Hedgecock, 2Lt Sheila P. Scott, MSgt Benjamin Hernandez, SSgt Mary M. Fields, SSgt Pietro La Torta, Sgt Harold D. Casey, and Sgt Robert P. Davis conducted the wastewater characterization survey from 6 to 15 March 1989. Maj Elliot K. Ng and 1Lt Anthony T. Zimmer conducted the hazardous waste survey during the same time period. Capt Edward F. Dietz (Chief, Bioenvironmental Engineering), Capt Michael J. Stook (Bioenvironmental Engineering), MSgt Jackson (NCOIC, Bioenvironmental Engineering), and Mrs Patricia Chilton (Environmental Coordinator) served as points of contact during the wastewater characterization survey.

The scope of the wastewater survey was to characterize the base wastewater effluent, the effluent from 4 major branch lines, the effluent from 10 food-serving facilities, and the effluent from 23 industrial shops. The scope of the hazardous waste survey was to address hazardous waste management practices and to explore opportunities for hazardous waste minimization.

II. DISCUSSION

A. Base Description

Bergstrom AFB, home of Headquarters 12th Air Force and the 57th Tactical Reconnaissance Wing, is located in Travis county, seven miles southeast of the City of Austin. The base is situated on approximately 4000 acres of land. The primary mission of the 57th Tactical Reconnaissance Wing is twofold. First, they maintain a combat-ready force capable of conducting tactical air reconnaissance missions worldwide. Second, they conduct basic and advanced reconnaissance training for all student inputs to the reconnaissance force.

B. Sewerage System

Sanitary and industrial sewage from BAFB is collected and transported by gravity and pressure lines to the City of Austin, Hornsby Bend Treatment Plant. The sewer system is divided into two main sewers serving the housing area and the main base complex. These combine at the main lift station (Bldg 5519), prior to leaving the base and entering the City of Austin's sewerage system. The major industrial operations on base involve aircraft and vehicle maintenance. In addition there are several photographic laboratories.

C. Discharge Limitations

Wastewater discharge limitations for BAFB are established by Austin Ordinance 82 1209-F, 31 TAC 335, and the Code of Federal Regulations Title 40 sections 403, 261.3, 433, 459, and 460. A summary of the effluent limitations imposed by Austin Ordinance 82 1209-F is shown in Table 1. The complete ordinance is included as Appendix B.

TABLE 1. DISCHARGE LIMITATIONS

The base discharge cannot exceed the following limitations:

- a. Biochemical Oxygen Demand (BOD) in excess of 200 mg/l over any 24-hour period.
- b. Chemical Oxygen Demand (COD) in excess of 450 mg/l over any 24-hour period.
- c. Suspended Solids (SS) in excess of 200 mg/l over any 24-hour period.
- d. Flammable or explosive liquids, solids, or gases.
- e. Any liquid or vapor having a temperature greater than 120 degrees Fahrenheit.
- f. Any substance that will solidify or become viscous between 55 and 90 degrees Fahrenheit.
- g. Garbage other than comminuted garbage.
- h. Any visible free animal, vegetable, or mineral oil and grease or a total animal, vegetable, or mineral oil and grease in excess of 200 mg/l over a 24-hour period.
- i. Acids or alkalies which attack or corrode the sewer system.
- j. Substances having a pH value lower than 6.0 or higher than 11.0.
- k. Any of the following elements in solution or suspension in concentrations exceeding the limit set as follows:

Element	Maximum Concentration (mg/l)
Arsenic	0.05
Barium	5.0
Boron	3.0
Cadmium	0.7
Chromium	5.0
Copper	4.5
Lead	0.1
Manganese	1.0
Mercury	0.005
Nickel	1.0
Selenium	0.4
Silver	1.0
Zinc	5.0

- l. Cyanides in excess of 2.0 mg/l.
- m. Phosphorous in excess of 15 mg/l or phosphates in excess of 45 mg/l.
- n. Sulfates in excess of 500 mg/l.
- o. Fluorides in excess of 5.0 mg/l.

III. PROCEDURES

A. Wastewater Characterization Survey

1. Sampling

a. Site numbers, locations and sampling dates - A list of site numbers, locations, and sampling dates is included in Table 2.

TABLE 2. SAMPLE SITE IDENTIFICATION

2-Day, 24-Hour Composite Sample Sites:

<u>Site</u>	<u>Location</u>	<u>Description</u>
1	MH 197	Maintenance Branch
2	MH 173	Maintenance Branch
3	MH 7A	Maintenance Branch
4	MH 79A	Maintenance Branch
5	MH 106B	Main Lift Station
6	MH 130	Main Lift Station
7	MH	City of Austin Manhole
8	MH 111	Housing

1-Day, 24-Hour Composite Sample Sites:

9	MH 150B	Hospital, Bldg 2700
10	MH	Crossing Dining Hall, Bldg 2312
11	MH 70	Officer's Club, Bldg 3710 and and Golf Course Snack Bar, Bldg 3711
12	MH 38	NCO Club, Bldg 3510 and Bowling Alley, Bldg 3520
13	MH 185	Jet Chef, Bldg 4527
14	MH	Burger King
15	MH 46A	Housing
16	MH 90	Recreation Center, Bldg 2410
17	MH 25A	Fire Truck Maintenance, Bldg 201
18	MH 23	Entomology, Bldg 900
19	MH 154	12th AF Headquarters, Bldg 2900
20	MH 179	Fuel Cell Repair, Bldg 4533
21	MH 174	Wheel and Tire, Bldg 4536
22	MH 196	924 TFG AGE, Bldg 4562
23	MH 203	602 TACC Vehicle Maint, Bldg 4577
24	MH 145	602 TACC AGE, Bldg 4580
25	MH 197	12 TIS/LGKM, Bldg 4586
26	MH 174	924 TFG CAMS, Bldg 4535
27	MH 156	Refueling Maintenance, Bldg 635
28	MH 19	CE Complex, Bldg 734
29	LS 1606	Phase Docks, Corrosion Control, Repair and Reclamation, Bldg 1609
30	MH 83	Maintenance, Bldg 1610

Table 2 Cont'd

<u>Site</u>	<u>Location</u>	<u>Description</u>
31	MH 94	CRS Propulsion, Bldg 1612
32	MH 7B	NDI, Bldg 1615
33	MH 10	Wing Intel/Photo, Bldg 1400
34	MH 23	67 CSG Auto Hobby Shop Bldg 600
35	LS 1606	Contract Corrosion Control, Bldg 1608
36	MH	1st Street (across street from west end of commissary)

1-Day, Grab Sample Sites:

37	OWS	712 ASOC/LGKV, Bldg 400
38	OWS	Fire Training Pit
39	MH 187	Aircraft Washrack, Bldg 4540

b. Sampling frequency

Daily collection of equiproportional 24-hour composite samples was accomplished at sites 1-36. Sites 1-8 were sampled for two consecutive days, and sites 9-36 were sampled for one day. Grab samples were taken at sites 37-39. The sampling was accomplished using ISCO models 2700, 2100, and 1580 Automatic Wastewater Samplers.

The strategy for determining how many samples to analyze from any given site was based on the available resources, changing nature of the wastewater, probability of finding a particular parameter in the time frame, and type of analysis required.

c. Sample analyses - The analysis method and sample preservation prescribed for each parameter is listed in Table 3. A summary of sampling sites and corresponding analyses is included in Table 4.

TABLE 3. ANALYSES AND PRESERVATION METHODS

<u>Analysis</u>	<u>Preservation</u>	<u>Method</u>	<u>Technique</u>	<u>Where</u>	<u>Who</u>
pH	none	A423	C	on-site	AFOEHL
Temperature	none	E170.1	C	on-site	AFOEHL
COD	none	E410.4	G	Brooks AFB	AFOEHL
BOD-5	none	A405.1	C	Brooks AFB	AFOEHL
Nonfilterable Residue	none	A160.2	G	Brooks AFB	AFOEHL
Oils and Greases Total Recoverable	H ₂ SO ₄	E413.1	G	Brooks AFB	AFOEHL
Petroleum Hydrocarbons Total Recoverable	HCl	E418.1	G	Brooks AFB	AFOEHL

Table 3 Cont'd

<u>Analysis</u>	<u>Preservation</u>	<u>Method</u>	<u>Technique</u>	<u>Where</u>	<u>Who</u>
Volatile Halocarbons	HCl	E601	G	Brooks AFB	AFOEHL
Volatile Aromatics	HCl	E602	G	Brooks AFB	AFOEHL
Phenols	none	E604	C	Contract	Datachem
Pesticides	none	E608	C	Contract	Datachem
Sulfates	none	E375.2	C	Brooks AFB	AFOEHL
ICP Metals Screen	HNO ₃	E200.7	C	Brooks AFB	AFOEHL
As, Cd, Ba, Ca, Cr, Co, Fe, Mg, Mn, Ni, Zn, Al, Mo, Be, Cu, V					
Mercury	HNO ₃	E245.1	G	Brooks AFB	AFOEHL
Cyanide	NaOH	E335.3	C	Brooks AFB	AFOEHL
Fluoride		E340	C	Brooks AFB	AFOEHL
Purgeable Organics	none	E624	G	Brooks AFB	AFOEHL
Acid/Base/Neutrals	none	E625	G	Contract	Datachem
Boron	none	A404A	C	Brooks AFB	AFOEHL
Phosphorus	H ₂ SO ₄	E365.4	C	Brooks AFB	AFOEHL
Nonhalogenated Volatile Organics		S8015	G		
MBAS	none	E425.1	C	Brooks AFB	AFOEHL
Radioactive Materials	none		G	Brooks AFB	AFOEHL

Notes:

A indicates Standard Methods for the Evaluation of Water and Wastewater
 E indicates EPA Methods for Chemical Analysis of Water and Wastes
 S indicates SW-846 Hazardous Waste Analysis Method
 C indicates 24-hour composite sample
 G indicates one-day grab sample

TABLE 4. SITE/ANALYSIS SUMMARY

Parameters	Site Number															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
BOD-5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chemical Oxygen Demand	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
pH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Temperature	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nonfilterable Residue	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Oils and Greases							X		X	X	X	X		X		
Petroleum Hydrocarbon							X									
Volatile Halocarbons							X									
Volatile Aromatics							X									
ICP Metals							X		X							
Mercury							X		X							
Cyanide							X									
Boron							X									
Phenols							X		X							
Pesticides							X									
Sulfates							X									
Fluoride							X									
Purgeable Organic							X									
Phosphorus							X									
Acid/Base/Neutrals							X									
Nonhalogenated Volatile Organics							X									
MSAS							X									
Radioactive Materials							X									

Parameters	Site Number															
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
BOD-5	X															
Chemical Oxygen Demand	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
pH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Temperature	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nonfilterable Residue	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Oils and Greases	X			X	X	X	X			X	X	X			X	
Petroleum Hydrocarbons	X			X	X	X	X			X	X		X		X	
Volatile Halocarbons	X			X	X	X	X		X	X			X	X	X	
Volatile Aromatics	X			X	X	X	X		X	X			X	X	X	
ICP Metals		X	X		X		X			X		X	X		X	
Mercury	X		X		X		X		X	X		X	X		X	
Cyanide													X			
Boron																
Phenols													X		X	
Pesticides		X														

Table 4 Cont'd

Parameters

Site Number

	32	33	34	35	36	37	38	39
Chemical Oxygen Demand		X	X	X	X	X		
pH		X	X	X	X	X	X	X
Temperature		X	X	X	X	X	X	X
Nonfilterable Residue		X	X	X	X	X	X	X
Oils and Greases		X		X	X	X		X
Petroleum Hydrocarbons		X		X	X	X	X	X
Volatile Halocarbons		X		X	X	X	X	X
Volatile Aromatics		X		X	X	X	X	X
ICP Metals		X		X	X	X		
Mercury		X		X	X	X		
Cyanide	X							
Boron	X							
Phenols				X				
MBAS						X	X	

2. Flow

Flow measurements were taken at four locations; main lift station, manholes 7B, 8 and 10. A pump hour meter was used at the main lift station to measure the daily flow exiting the base. Instantaneous flow measurements were taken at manholes 7B, 8 and 10 using 8" and 12" Palmer-Bowling flumes. The flow through the main lift station is the total flow exiting the base. The flow in manhole 10 is contributed to by the civil engineering complex, base exchange, wing intelligence/photo lab and commissary. The flow through manhole 8 is a combination of the flow from manhole 10, industrial operations located north of the flight line and the Crossing Dining Hall. The flow in manhole 7B consists of discharges from industrial operations located south of the flight line.

B. Hazardous Waste Survey

The first step of the survey was to review the base's hazardous waste management plan and the Bioenvironmental Engineer's industrial shop folders to determine which shops generate chemical wastes. This was followed by visits to shops to observe industrial operations, discuss chemical waste disposal practices with shop personnel, and hand out chemical disposal survey forms (see Appendix C). These forms, which were completed by shop personnel, were reviewed by the survey team and provided additional information for subsequent discussions with shop personnel. Also, each hazardous waste accumulation site and satellite accumulation site was visited and evaluated. The following individuals were contacted to discuss their responsibility and involvement in the hazardous waste program:

Mrs Chilton, Environmental Coordinator, AV 685-2494
 Mr Whatley, Hazardous Waste Specialist, AV 685-2494
 Capt Dietz, Environmental Engineer, AV 685-3056

Based on the data from the completed chemical disposal survey forms, the annual forecasted quantities for 8 categories of waste were determined (see Table 5). From Table 5, column 5 the majority of the hazardous wastes generated on HAFB, 99.8%, consists of paint stripping wastes generated at 67 TRW Regional Corrosion Control Facility (Bldg 1608). Itemized listings of waste categories, shop, amount of waste, and disposal method are found in Appendix D for all wastes and in Appendix E for hazardous wastes.

**TABLE 5. ANNUAL FORECASTED QUANTITIES FOR
WASTE CATEGORIES AT BERGSTROM AFB**

PRODUCT	TOTAL, (GAL/YR)	\$TOTAL	DISPOSED AS HAZ WASTE	\$TOTAL, HAZ WASTE (GAL/YR)
Oils & Fluids	15240	3.9	0	0
Paints, Thinners & Strippers	361332	92.3	361320	99.8
Fuel	2732	0.7	0	0
Solvents	5910	1.5	0	0
Batteries	823*	0.2	0	0
Antifreeze	1572	0.40	0	0
Soap	2376	0.6	0	0
NDI	1360	0.4	880	0.2
TOTAL: 391345		TOTAL: 362200		

* Number of batteries/year rather than gallons/year

IV. RESULTS AND DISCUSSION

A. Wastewater Characterization Survey

1. Introduction

Contaminant concentrations as well as physical and chemical parameters are presented in the following section. Some high concentrations show a potential problem with industrial waste disposal methods. Other concentrations are characteristic of the normal wastewater flow in the sanitary sewer system. Appendix F contains complete analytical results for each site.

2. Sanitary Sewer System

a. Site 1. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 197, maintenance branch. Total suspended solids (TSS) were 44 mg/l (day 1) and 1 mg/l (day 2). Chemical oxygen demand (COD) was 560 mg/l. Biochemical oxygen demand (BOD) was 477.5 mg/l (day 1) and 602.1 mg/l (day 2).

b. Site 2. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 173, maintenance branch. TSS were 31 mg/l (day 1) and 28 mg/l (day 2). COD was 1090 mg/l. BOD was 555.2 mg/l (day 1) and 253.4 mg/l (day 2).

c. Site 3. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 7A, maintenance branch. TSS were 12 mg/l (day 1) and 15 mg/l (day 2). COD was 750 mg/l. BOD was 292.0 mg/l (day 1) and 346.7 mg/l (day 2).

d. Site 4. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 79A, maintenance branch. TSS were 14 mg/l (day 1) and 12 mg/l (day 2). COD was 1510 mg/l. BOD was 191.9 mg/l (day 1) and 189.8 mg/l (day 2).

e. Site 5. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 105B, main lift station. TSS were 4 mg/l (day 1) and 7 mg/l (day 2). COD was 800 mg/l. BOD was 160.1 mg/l (day 1) and 148.7 mg/l (day 2).

f. Site 6. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 130, main lift station. TSS were 9 mg/l (day 1) and 10 mg/l (day 2). COD was 640 mg/l. BOD was 151.4 mg/l (day 1) and 238.6 mg/l (day 2).

g. Site 7. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from the City of Austin manhole. TSS were 1 mg/l (day 1) and 2 mg/l (day 2). COD was 575 mg/l. BOD was 139.2 mg/l (day 1) and 108.9 mg/l (day 2). The COD exceeded the daily maximum level (450 mg/l) required for the base effluent. Toxic metals concentrations were within limits. Volatile organic compounds (VOCs) detected were methylene chloride (1.1 µg/l), Benzene (3.2 µg/l), and toluene (0.8 µg/l). All were within limits.

h. Site 8. A 2-day, 24-hour sample composited hourly and a one-day grab sample were taken from MH 111, housing. TSS were 17 mg/l (day 1) and 8 mg/l (day 2). COD was 410 mg/l. BOD was 180.8 mg/l (day 1) and 222.0 mg/l (day 2).

i. Site 9. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 150B servicing the Hospital, Bldg 2700. TSS were 7 mg/l; COD was 500 mg/l; and BOD was 181.5 mg/l. Toxic metals were within limits; however, the titanium level (6.4 mg/l) was high.

j. Site 10. A 24-hour sample composited hourly and a one-day grab sample were taken from the manhole servicing Crossing Dining Hall, Bldg 2312. TSS were 23 mg/l, and COD was 750 mg/l.

k. Site 11. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 70 servicing the Officer's Club, Bldg 2700 and the Golf Course Snack Bar, Bldg 3711. TSS were 128 mg/l; COD was 1200 mg/l; and BOD was 333.4 mg/l.

l. Site 12. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 38 servicing the NCO Club, Bldg 3510 and the Bowling Alley, Bldg 3520. TSS were 4 mg/l, and COD was 280 mg/l.

m. Site 13. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 185 servicing the Jet Chef, Bldg 4527. TSS were 30 mg/l; COD was 700 mg/l; and BOD was 382.9 mg/l.

n. Site 14. A 24-hour sample composited hourly and a one-day grab sample were taken from the manhole servicing Burger King. TSS were 114 mg/l, and COD was 800 mg/l.

o. Site 15. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 46A servicing Housing. TSS were <1 mg/l; COD was 310 mg/l; and BOD was 133.0 mg/l.

p. Site 16. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 70 servicing the Recreation Center, Bldg 2410. TSS were 4 mg/l, and COD was 280 mg/l.

q. Site 17. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 25A servicing Fire Truck Maintenance, Bldg 201. TSS were <1 mg/l; COD was 50 mg/l; and BOD was 45.3 mg/l. The only VOC detected was chloroform (0.6 µg/l); this concentration was within limits.

r. Site 18. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 23 servicing Entomology, Bldg 900. TSS were 32 mg/l, and COD was 490 mg/l. Toxic metals were within limits.

s. Site 19. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 154 servicing 12th AF Headquarters, Bldg 2900. TSS were 19 mg/l, and COD was 257 mg/l. Toxic metals were within limits.

t. Site 20. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 179 servicing Fuel Cell Repair, Bldg 4533. TSS were 35 mg/l, and COD was 460 mg/l.

u. Site 21. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 174 servicing Wheel and Tire, Bldg 4536. TSS were 13 mg/l, and COD was 228 mg/l. Toxic metals were within limits. The only VOC detected was methylene chloride (1.1 µg/l); this concentration was within limits.

v. Site 22. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 196 servicing 924 TFG AGE, Bldg 4562. TSS were 10 mg/l, and COD was 452 mg/l. VOCs detected were methylene chloride (0.8 µg/l) and toluene (16.0 µg/l); all were within limits.

w. Site 23. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 203 servicing 602 TACC Vehicle Maintenance, Bldg 4577. TSS were 19 mg/l, and COD was 220 mg/l. Toxic metals were within limits. The only VOC detected was methylene chloride (1.4 µg/l); this concentration was within allowable limits.

x. Site 24. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 145 servicing 602 TACC AGE, Bldg 4580. TSS were 116 mg/l, and COD was 500 mg/l.

y. Site 25. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 197 servicing 12 TIS/LGKM, Bldg 4588. TSS were 44 mg/l, and COD was 560 mg/l.

z. Site 26. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 174 servicing 924 TFC CAMS, Bldg 4535. TSS were 13 mg/l, and COD was 228 mg/l. Toxic metals were within limits. The only VOC detected was methylene chloride (1.1 µg/l); this concentration was within allowable limits.

aa. Site 27. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 156 servicing Refueling Maintenance, Bldg 635. TSS were 16 mg/l, and COD was 866 mg/l. The only VOC detected was toluene (4.5 µg/l); this concentration was within allowable limits. The petroleum hydrocarbon concentration (340 mg/l) exceeded the maximum daily concentration (200 mg/l).

bb. Site 28. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 19 servicing the CE Complex, Bldg 734. TSS were 14 mg/l, and COD was 180 mg/l. Toxic metals were within limits.

cc. Site 29. A 24-hour sample composited hourly and a one-day grab sample were taken from lift station 1606 servicing Bldg 1609. TSS were 12 mg/l, and COD was 2600 mg/l. Toxic metals were within limits; however, a high iron (7.5 mg/l) concentration was detected. VOCs detected were methylene chloride (3.2 mg/l) and toluene (10.0 µg/l); these were within limits.

dd. Site 30. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 83 servicing Bldg 1610. TSS were 74 mg/l, and COD was 465 mg/l.

ee. Site 31. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 94 servicing CRS Propulsion, Bldg 1612. TSS were 43 mg/l, and COD was 1375 mg/l. Toxic metals were within limits. VOCs detected were cis-1, 3-dichloropropene (14.0 µg/l) and methylene chloride (9.0 µg/l); these were within limits. The petroleum hydrocarbon concentration (389.0 mg/l) exceeded the daily maximum concentration (200 mg/l).

ff. Site 32. The flow in MH 7B servicing NDI, Bldg 1615 was negligible. A sample was not obtained.

gg. Site 33. A 24-hour sample composited hourly and a one-day grab sample were taken from MH 10 servicing Wing Intelligence/Photo, Bldg 1400. TSS were 5 mg/l, and COD was 280 mg/l. Toxic metals were within limits. The only VOC detected was methylene chloride (0.5 µg/l); this concentration was within limits.

hh. Site 34. The flow in MH 23 servicing the Auto Hobby Shop, Bldg 600 was negligible. A sample was not obtained.

ii. Site 35. A 24-hour sample composited hourly and a one-day grab sample were taken from lift station 1606 servicing Bldg 1608. TSS were 12 mg/l, and COD was 2600 mg/l. Toxic metals were within limits; however, a high iron (7.5 mg/l) concentration was detected. VOCs detected were methylene chloride (3.2 mg/l) and toluene (10.0 µg/l); these were within limits.

jj. Site 36. A 24-hour sample composited hourly and a one-day grab sample were taken from the manhole located on 1st Street across from the west end of commissary. TSS were 40 mg/l, and COD was 650 mg/l. Toxic metals were within limits; however, a high iron (7.5 mg/l) concentration was detected. VOCs detected were chloroform (0.4 µg/l) and ethylbenzene (18.0 µg/l); these were within limits.

kk. Site 37. A one-day grab sample was taken from the oil/water separator servicing 712 ASOC/LGKV, Bldg 400. TSS were 81 mg/l, and COD was 10500 mg/l. The manganese concentration (1.4 mg/l) exceeded the maximum allowable daily concentration (1.0 mg/l). Also, a high iron concentration (77.6 mg/l) was detected. VOCs detected were 1,1,2,2-tetrachloroethane (18.0 µg/l) and 1,1,1-trichloroethane (18.0 µg/l); these were within limits.

ll. Site 38. A one-day grab sample was taken from the oil/water separator servicing the Fire Training Pit. The TSS and COD samples were lost in transit.

mm. Site 39. A one-day grab sample was taken from MH 187 servicing the Aircraft Washrack, Bldg 4540. TSS were <1 mg/l, and BOD was 60.9 mg/l.

3. Flow Measurements

Approximately 20% of the total flow exiting the base is from industrial facilities and the remaining 80% is from housing areas, administrative facilities, and food-serving facilities. Results of flow measurements are presented below.

Date	Site	Flow (MGD)	Date	Site	Flow (MGD)	% Total
6 Mar	LS	0.73	14 Mar	MH 7B**	0.024	~3.5
7 Mar	LS	0.78	14 Mar	MH 8**	0.1	~14.5
8 Mar	LS	0.80	14 Mar	MH 10	0.016	***
9 Mar	LS	0.70				
10 Mar	LS	0.60*				
11 Mar	LS	0.60*				
12 Mar	LS	0.60*				
AVG DAILY FLOW		0.69				

Legend: LS - Main Lift Station

*Average daily flow calculated from total weekend flow

**The total flow measurements from the industrial facilities can be approximated by adding the flows through MH 7B (0.024 MGD) and MH 8 (0.1 MGD).

***Flow through MH 10 contributes to the flow in MH 8.

B. Hazardous Waste Program

The current hazardous waste program is operating fairly well. The environmental coordinator is responsible for managing the base environmental program. The waste analysis plan developed by the environmental coordinator is well written and thorough (See Appendix G). The hazardous waste specialist is responsible for managing the hazardous waste program. His responsibilities include updating the waste analysis plan, training shop personnel (See Appendix H), inspecting accumulation sites and exploring waste minimization techniques. The Base Bioremediation Engineer (BEE) is responsible for sampling wastestreams specified in the waste analysis plan and any unknown wastes.

In general, hazardous and nonhazardous wastes are transported from the industrial shops to one of two storage areas. Hazardous wastes are taken to the accumulation site located adjacent to Bldg 1602 (See Figure 1). The turn-in procedures for hazardous wastes can be found in Appendix I.

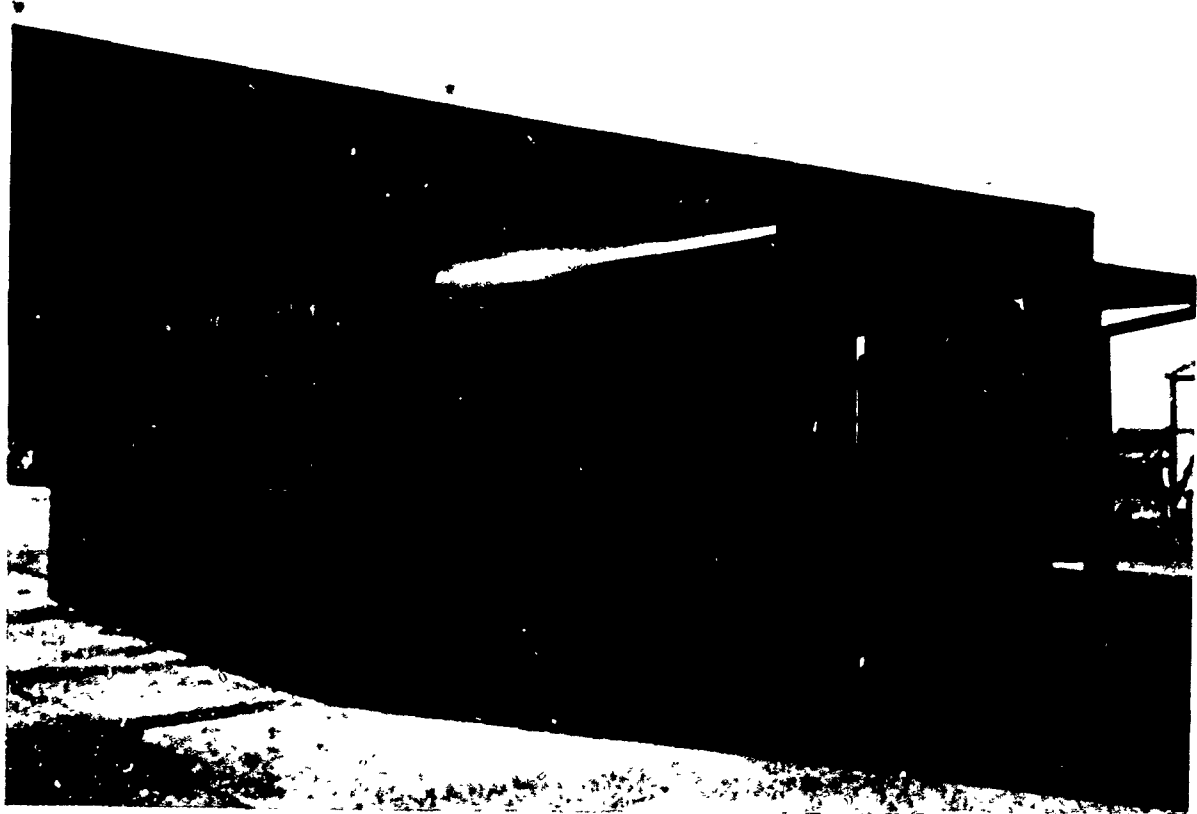


Figure 1: Hazardous Waste Accumulation Site

Nonhazardous wastes are transported to underground storage tanks located in the Petroleum Oils and Lubricants (POL) storage area. Four underground storage tanks (USTs) (25,000 gallon capacity each) are used for storing the following wastes generated throughout base: waste synthetic oils, oil/water separator wastes, waste oil and petroleum solvents, and waste fuels.

At the time of the survey the base was having difficulty finding a contractor to pump out and dispose of the waste stored in the USTs. As a result, numerous shops throughout the base have a backlog of wastes accumulating in the shop areas.

V. DESCRIPTION OF INDUSTRIAL ACTIVITIES. Twenty-two industrial shops (Master List Contained in Appendix J) were surveyed and their chemical waste handling practices were documented. The findings for each industrial shop follow (see Appendix K for a shop-by-shop listing of waste disposal practices).

A. 67 Civil Engineering Squadron (67 CES)

1. Shop: Power Production
Contact: TSgt Mack

Building: 723
AUTOVON: 685-3770

Shop personnel are responsible for performing maintenance and repair on emergency power generators and aircraft arresting barriers. Electrolyte drained from unservicable batteries (5/month) is neutralized with baking soda and discharged down the drain to the sanitary sewer. Waste motor oil (30 gallons/month) and spent antifreeze (30 gallons/month) are drummed and disposed as nonhazardous waste through DRMO. Used rags are disposed as municipal waste. The shop's satellite accumulation area (See Figure 2) is used by other shops within the civil engineering complex. No written logs of chemicals put into the waste drums are kept.



Figure 2: 67 CES Power Production Accumulation Site

2. Shop: Protective Coating
Contact: Mr Vargas

Building: 734
AUTOVON: 685-2512

Protective Coating personnel are responsible for interior and exterior painting operations throughout the base. Paint and thinner wastes (3 gallons/month) generated during cleaning operations (See Figure 3) are drummed and disposed as hazardous waste through DRMO. Waste latex paint (1 gallon/month) is reused as a blockout for street painting operations. The shop is installing a stripping tank (25-gallon capacity) for reconditioning used aluminum signs. The stripping tank is currently located outdoors. The area is not diked or bermed (See Figure 4). The accumulation site is located on an unsecured, undiked and uncovered impermeable surface. Used rags are disposed as municipal waste.

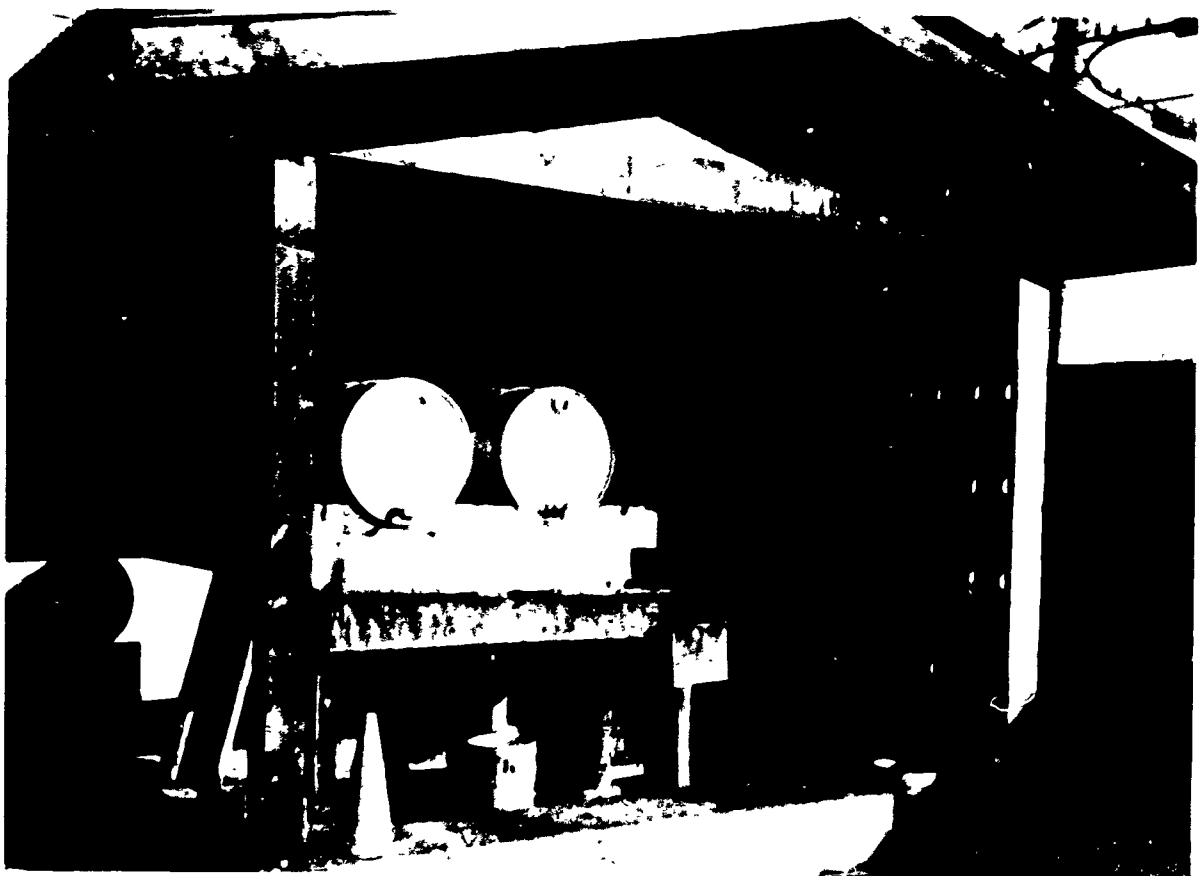


Figure 3: 67 CES Protective Coating Brush Cleaning Area

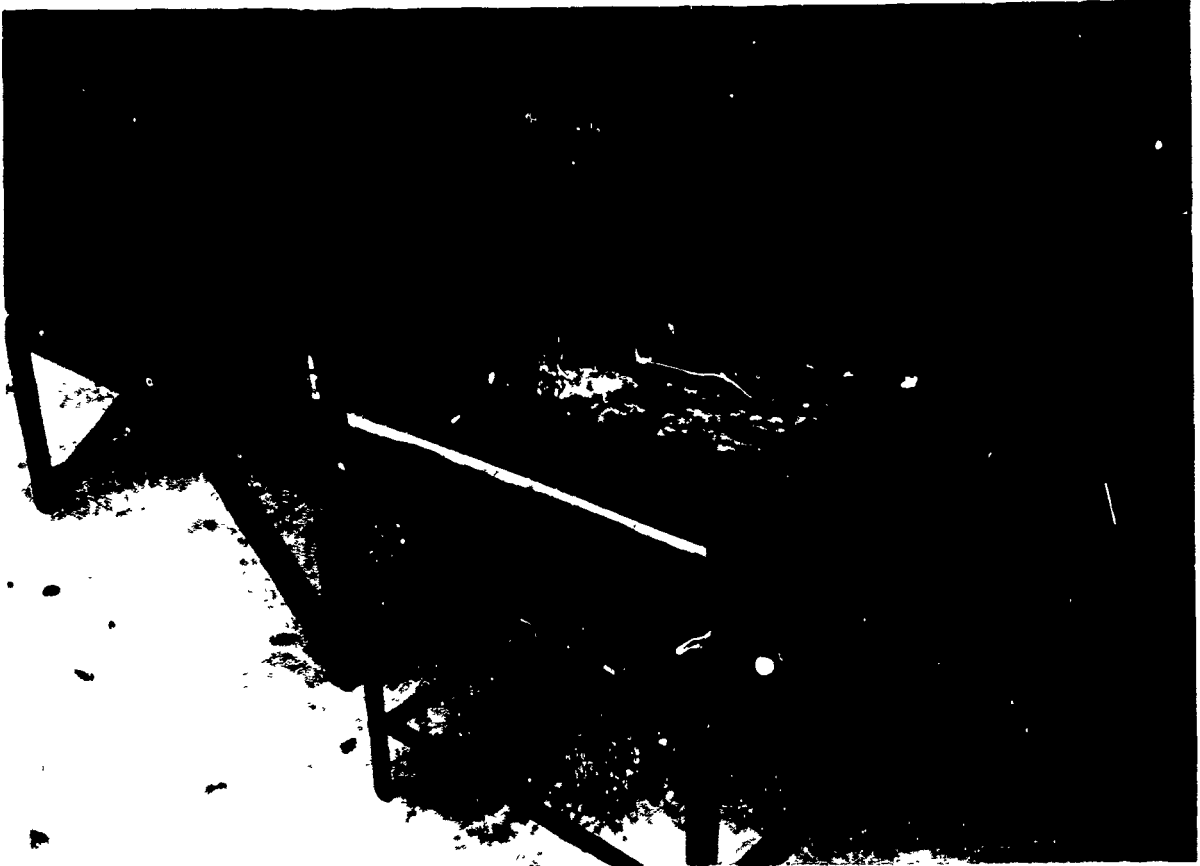


Figure 4: 67 CES Protective Coating Stripping Vat

B. 67 Combat Repair Squadron (67 CRS)

1. Shop: Electrical Systems
Contact: MSgt Ely

Building: 1610
AUTOVON: 685-3747

Shop personnel are responsible for servicing and disposing batteries from throughout the base. Electrolyte drained from unservicable batteries (15/month) is neutralized with baking soda and discharged down the drain to the sanitary sewer.

2. Shop: Jet Repair
Contact: SSgt Ashelman

Building: 1612
AUTOVON: 685-2411

Jet Repair personnel are responsible for tearing down and rebuilding aircraft engines. Waste synthetic oil (10 gallons/month) and hydraulic fluid (3 gallons/month) are drummed separately in 55-gallon drums and disposed as nonhazardous waste through DRMO. JP-4 (10 gallons/month) is

taken to POL for disposal or reclamation. Citrikleen (55 gallons/month) is used in a steam cleaner on the washrack for cleaning engines. The washrack drains to an oil/water separator connected to the sanitary sewer system. The oil/water separator is cleaned out on a quarterly basis by a contractor. Used rags are taken to linen exchange for cleaning and reissue.

3. Shop: Fuel Systems
Contact: MSgt Baird

Building: 4533
AUTOVON: 685-3674

Shop personnel perform fuel system repairs on F-4 aircraft. Waste JP-4 (100 gallons/month) generated during maintenance operations is vacuumed into a 400-gallon fuel bowser (see Figure 5) and taken to POL for reclamation or disposal through DRMO. Used rags are taken to linen exchange for cleaning and reissue.



Figure 5: 67 CRS Fuel System Repair Fuel Bowser

4. Shop: Test Cell
Contact: TSgt Cumming

Building: 4576
AUTOVON: 685-3673

Engine Test Cell personnel are responsible for acceptance testing of aircraft engines. Waste synthetic oil (10 gallons/month) and JP-4 (50

gallons/month) generated during engine testing procedures are drummed and disposed as nonhazardous waste through DRMO. Citrikleen (20 gallons/month diluted 3:1) is used to clean the test pad after each engine run. All wastes drain to an oil/water separator connected to a drain field located behind the facility. Used rags are taken to linen exchange for cleaning and reissue.

C. 67 Combat Support Group (67 CSG)

S Auto Hobby
Co rt: MSgt Dartez

Building: 600
AUTOVON: 685-3425

Shop personnel are responsible for providing equipment and instruction for do-it-yourself vehicle maintenance. Lead-acid batteries (10/month) are turned in yet to a recycler. The shop has a 140 Solvent tank (7-gallon capacity) that is periodically replenished; the tank has never been changed out. Aircraft soap (8 gallons/month, diluted 10:1) is rinsed down the drain to an oil/water separator that is pumped out quarterly by a contractor. Waste oil (300 gallons/month), transmission fluid (2 gallons/month) and brake fluid (1 gallon/month) are placed in one of two aboveground waste oil tanks (200-gallon capacity). When full, the waste oil is pumped out by a local contractor. The waste oil accumulation area is located on a gravel surface; there is evidence of oil spillage at the area (See Figure 6). Used rags are taken to the linen exchange for cleaning and reissue.

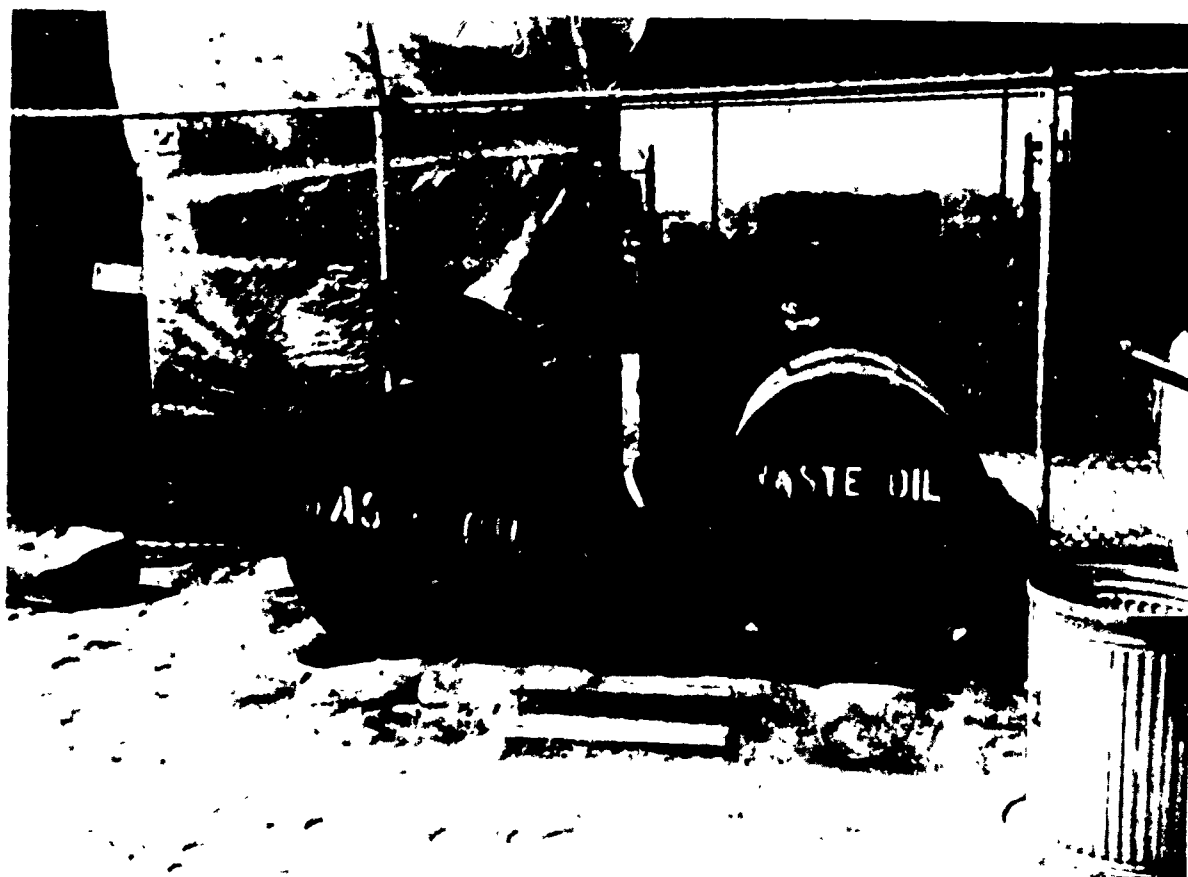


Figure 6: 67 CSG Auto Hobby Waste Oil Storage Tanks

D. 67 Equipment Maintenance Squadron (67 EMS)

- 1. Shop: Corrosion Control**
Contact: TSgt Brigham

Building: 1609
AUTOVON: 685-2051

Corrosion Control personnel are responsible for stripping, corrosion treating and painting aircraft parts and related equipment. Waste polyurethane paint (15 gallons/month), thinner (10 gallons/month) and methyl ethyl ketone (25 gallons/month) are drummed and disposed as hazardous waste. All rags contaminated with hazardous waste are drummed and disposed as hazardous waste. Small amounts of aerosol stripper (NSN 8010 PPWC-1076) are used in process. Aircraft soap (110 gallon/month, diluted 5:1) and 140 Solvent (165 gallons/month) used at the washrack are rinsed down the drain to an oil/water separator connected to the sanitary sewer. The oil/water separator is pumped out every six months by a contractor.

- 2. Shop: Wheel and Tire**
Contact: AIC Raymond

Building: 1610
AUTOVON: 685-2621

Shop personnel break down, clean and rebuild RF-4 landing gear and wheels. 140 Solvent tanks (295 gallons/6 months) are drained into an UST. The UST is pumped out by a local contractor (currently Austin-Travis County Bio-Environmental). The UST has not been leak tested. Used rags are taken to linen exchange for cleaning and reissue.

- 3. Shop: Nondestructive Inspection**
Contact: TSgt Yzaguirre

Building: 1615
AUTOVON: 685-2331

Nondestructive Inspection (NDI) personnel are responsible for determining the structural integrity of aircraft parts and equipment. Waste fixer (20 gallons/month) is processed through a silver recovery unit before being discharged down the drain to the sanitary sewer. Waste x-ray developer (20 gallons/year) is discharged down the drain to the sanitary sewer. Waste oil (20 gallons/month) generated during the oil analysis process is taken to the Jet Engine Shop satellite accumulation site (Bldg 1612) and poured into a 55-gallon drum. Waste emulsifier (110 gallons/3 months) and dye penetrant (110 gallons/3 months) used in the dye penetrant inspection process are drummed and disposed as hazardous waste through DRMO.

- 4. Shop: Aerospace Ground Equipment**
Contact: TSgt Writt

Building: 4548
AUTOVON: 685-3914

Shop personnel are responsible for dispatching and servicing powered and nonpowered aerospace ground equipment (AGE) assigned to the 57th Wing. Unservicable batteries (4/month) are taken to the Electrical Systems Shop (Bldg 1610) for electrolyte neutralization and disposal. Spent antifreeze (50 gallons/month) is discharged down the drain to the sanitary sewer. Citrikleen (10 gallons/month) is used in a steam cleaner for cleaning equipment. The washrack drain leads to an oil/water separator that is cleaned out every three weeks by a contractor. Motor oil (50 gallons/month), hydraulic fluid (100 gallons/month) and synthetic oil (250 gallons/month) are

drummed separately for disposal as nonhazardous waste through DRMO. Due to the waste disposal problems at the POL storage area, shop personnel have created a temporary nonhazardous waste storage area (See Figure 7). Used rags are taken to linen exchange for cleaning and reissue.



Figure 7: 67 EMS AGE Temporary Nonhazardous Waste Storage Area

E. 67 Transportation Squadron (67 TRANS)

1. Shop: Refueling Maintenance
Contact: SSgt Norris

Building: 635
AUTOVON: 685-3341

Refueling Maintenance personnel are responsible for maintaining fuel servicing equipment. Waste motor oil (10 gallons/month) is drummed for disposal as nonhazardous waste oil. Waste fuel (5 gallons/month) is turned in to POL for reclamation or disposal through DRMO. The shop has an oil/water separator connected to the sanitary sewer; the separator is cleaned out once a month by a contractor. Used rags are taken to linen exchange for cleaning and reissue.

2. Shop: Heavy Vehicle Maintenance
Contact: Sgt Hernandez

Building: 713
AUTOVON: 685-3621

Shop personnel are responsible for rebuilding and maintaining heavy service vehicles. Unservicable batteries (3/month) are taken to the main transportation facility (Bldg 1801) for electrolyte neutralization and disposal. 140 Solvent (60 gallons/year) is drummed and disposed as nonhazardous waste solvent through DRMO. Waste antifreeze (10 gallons/month) is drummed and disposed through DRMO. Waste brake fluid (2 gallons/month), transmission fluid (15 gallons/month), hydraulic fluid (15 gallons/month), and motor oil (15 gallons/month) are placed in 55-gallon drums for disposal as nonhazardous waste oil. There is evidence of oil contaminated soil at the satellite accumulation area (see Figure 8).

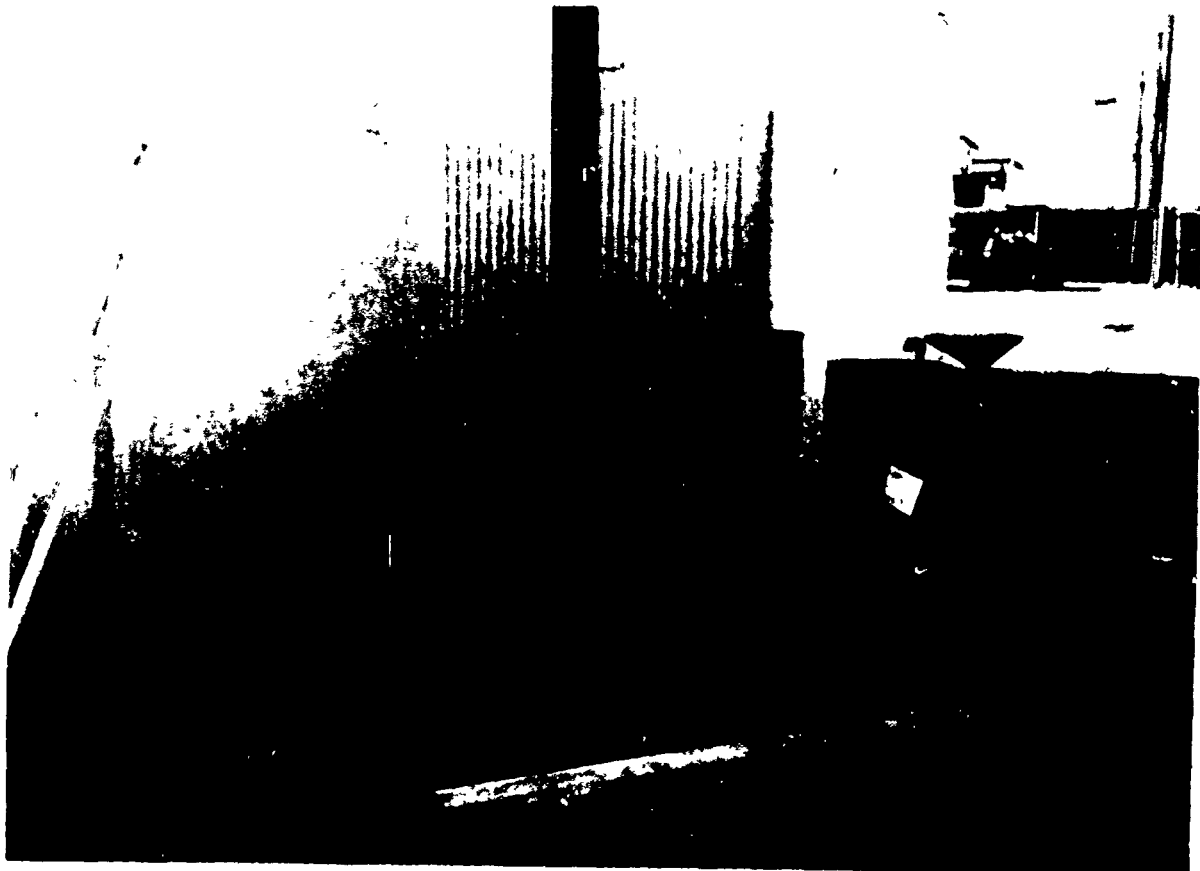


Figure 8: 67 TRANS Heavy Vehicle Maintenance Accumulation Site

3. Shop: General/Special Maintenance
Contact: SSgt Eakins

Building: 1801
AUTOVON: 685-3404

Vehicle Maintenance personnel are responsible for routine service and maintenance on base vehicles. Electrolyte from lead-acid batteries (14/month) is neutralized with baking soda before disposal down the drain. Waste PD-680 (55 gallons/3 months) is drummed and disposed as nonhazardous waste solvent. Waste transmission fluid (5 gallons/month), hydraulic fluid (20 gallons/month) and motor oil (200 gallons/month) are drummed together and disposed as nonhazardous waste. There is evidence of oil contaminated soil at the waste oil storage area (See Figure 9). Waste fuels (10 gallons/month) are drummed for disposal through DRMO or reclamation through POL. Waste antifreeze (15 gallons/month) is drummed for disposal through DRMO. Aircraft soap (55 gallons/month, diluted 3:1) used for cleaning vehicles and floors drains to an oil/water separator connected to the sanitary sewer. The oil/water separator is pumped out on a quarterly basis by a contractor. Used rags are disposed as municipal waste.



Figure 9: 67 TRANS Vehicle Maintenance Waste Oil Storage Area

4. Shop: Allied Trades
Contact: SSgt Eakins

Building: 1806
AUTOVON: 685-3459

Shop personnel are responsible for performing bodywork and repainting base vehicles. Waste paint (12 gallons/month) and thinner (15 gallons/month) are drummed together for disposal as hazardous waste through DRMO. The hazardous waste drums are stored in a concrete storage area located adjacent to Bldg 1801.

F. 602 Tactical Air Control Center Squadron (602 TACCS)

1. Shop: Vehicle Maintenance
Contact: SSgt Wiederhold

Building: 4577
AUTOVON: 685-4022

Vehicle Maintenance personnel are responsible for performing service and routine maintenance on vehicles assigned to the 602 TACCS. Waste paint (16 gallons/month) and thinners (4 gallons/month) are drummed for disposal as hazardous waste through DRMO. Unservicable batteries (8/month) are taken to the Electrical Systems Shop (Bldg 1610) for electrolyte neutralization and disposal. Waste brake fluid (3 gallons/month), transmission fluid (1 gallon/month), hydraulic fluid (5 gallons/month) and motor oil (32 gallons/month) are drummed together for disposal as nonhazardous waste oil. Citrikleen (5 gallons/month) used to clean equipment is drained to an oil/water separator connected to the sanitary sewer. The oil/water separator is pumped out on a quarterly basis by a contractor. Used antifreeze (10 gallons/month) is taken to DRMO for disposal as nonhazardous waste. Used rags are taken to linen exchange for cleaning and reissue.

2. Shop: Aerospace Ground Equipment
Contact: MSgt Terry

Building: 4580
AUTOVON: 685-2700

Shop personnel are responsible for inspecting and repairing components on AGE assigned to the 602 TACCS. Unservicable batteries (3/month) are taken to the Electrical Systems Shop (Bldg 1610) for electrolyte neutralization and disposal. Waste motor oil (2 gallons/month) and synthetic oil (4 gallons/month) are drummed for disposal as nonhazardous waste oil through DRMO. Waste fuel (10 gallons/month) is taken to POL for either reuse or disposal through DRMO. Spent antifreeze (6 gallons/month) is drummed for disposal through DRMO. Used rags are taken to linen exchange for cleaning and reissue.

G. 712 Air Support Operations Center (712 ASOC)

Shop: Vehicle Maintenance
Contact: TSgt Whiteside

Building: 400
AUTOVON: 685-2202

Vehicle Maintenance personnel are responsible for servicing and maintaining vehicles assigned to 712 ASOC. Waste paint (4 gallons/month) and thinner (6 gallons/month) are drummed for disposal as a hazardous waste through DRMO. Used batteries (4/month) are taken to the Electrical Systems Shop (Bldg 1610) for electrolyte neutralization and disposal. Aircraft soap

(25 gallons/month) used at the washrack drains to an oil/water separator connected to the sanitary sewer. The separator is cleaned out on an as-needed basis by a contractor. Waste motor oil (40 gallons/month) is drummed for disposal as nonhazardous waste oil. Waste fuel (20 gallons/month) is taken to POL for either reclamation or disposal through DRMO. Spent antifreeze (10 gallons/month) is drummed and disposed through DRMO. Used rags are taken to linen exchange for cleaning and reissue.

H. 924th Tactical Fighter Group (924 TFG)

Shop: Aerospace Ground Equipment
Contact: Mr Medina

Building: 4562
AUTOVON: 685-3663

Shop personnel maintain, service and repair AGE assigned to the 924 TFG. Electrolyte from unserviceable batteries (4/month) is neutralized with baking soda before disposal down the drain to the sanitary sewer. Waste hydraulic fluid (5 gallons/month), motor oil (25 gallons/month) and synthetic oil (50 gallons/month) are stored in two bowzers (250-gallon capacity) (See Figure 10) before disposal as nonhazardous waste oil. The 140 solvent (165 gallons/3 months) is drummed and disposed as nonhazardous waste. Citrikleen (55 gallons/month) is used in a steam cleaner for cleaning AGE. The waste drains to an oil/water separator connected to the sanitary sewer. The oil/water separator is cleaned out semiannually by a contractor. Used rags are disposed as municipal waste.



Figure 10: 924 AGE Waste Oil Storage Area

2. Shop: Jet Engine
Contact: MSgt McKay

Building: 4589
AUTOVON: 685-2633

Jet Engine shop personnel are responsible for maintaining, repairing and overhauling jet engines. Waste hydraulic fluid (18 gallons/month) and synthetic oil (22 gallons/month) are drummed together for disposal as nonhazardous waste oil. Citrikleen (55 gallons/month) is used for cleaning equipment. The cleaning waste drains to an oil/water separator connected to the sanitary sewer. The separator is cleaned out every two months by a contractor. Waste fuel (30 gallons/month) is taken to POL for reclamation or disposal through DRMO.

I. 67 Tactical Reconnaissance Wing (67 TRW)

Shop: Regional Corrosion Control
Contact: Mr McDuff

Building: 1608
AUTOVON: 685-3096

The Regional Corrosion Control facility is a contract operation responsible for stripping, corrosion treating and repainting aircraft (See Figure 11). Stripping wastes drain to a 6000-gallon holding tank that is cleaned out 6 times/month; the waste is disposed as hazardous waste by the contractor. Polyurethane paint wastes are drummed for disposal as hazardous waste through DRMO.



Figure 11: 67 TRW Regional Corrosion Control Stripping Operations

J. 67 Medical Group

**Facility: Hospital
Contact: Capt Houst**

**Building: 2700
AUTOVOL: 585-3494**

Materials contaminated with bodily fluids (excluding medical equipment and instruments) are red-bagged (50 bags/day) and incinerated at the hospital. Used sharps are placed into plastic syringe disposal boxes and rendered unusable and unrecognizable (the box and syringes are melted together to encapsulate the sharps) (See Figure 12). The incinerated wastes and melted syringe disposal boxes are disposed as municipal waste. All laboratory wastes are autoclaved before disposal as municipal waste.

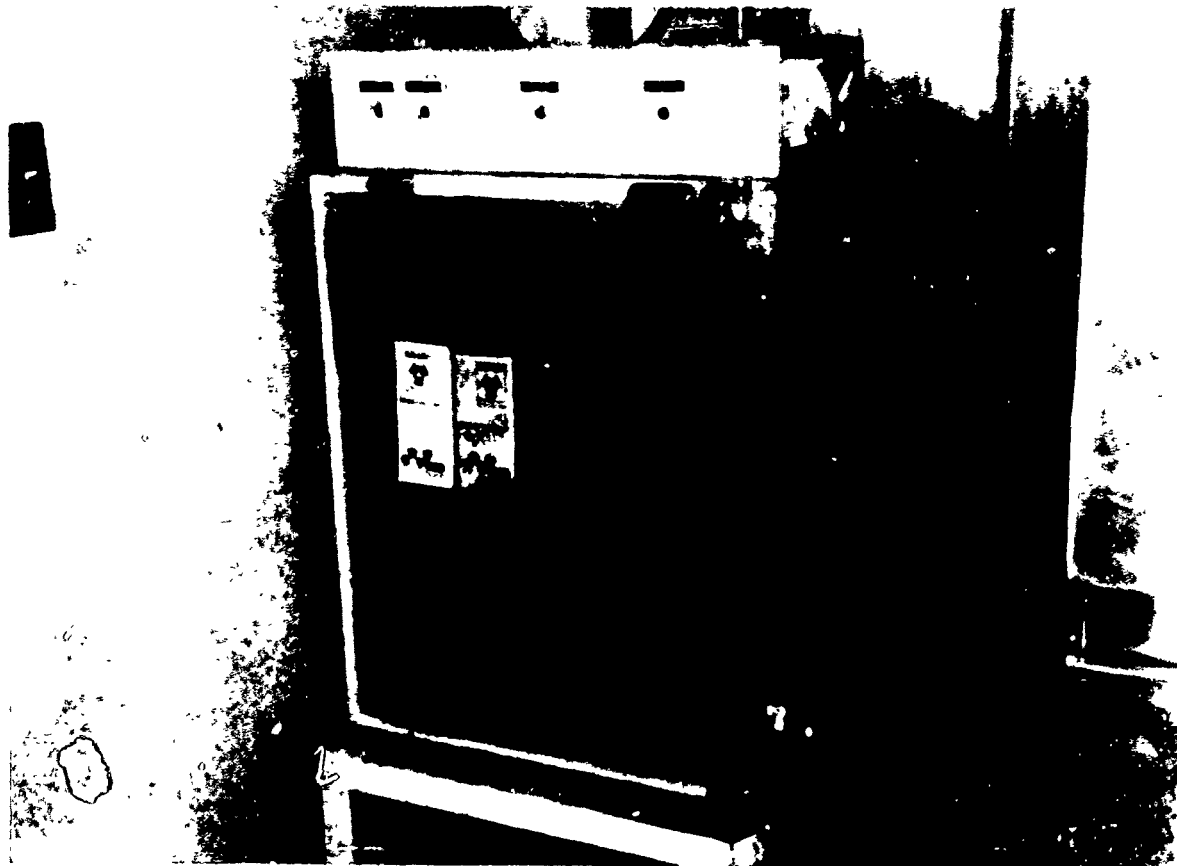


Figure 12: 67 Hosp Thermal Inactivation Unit

VI. SUMMARY OF WASTE DISPOSAL PRACTICES

A. Waste oils, fluids, and petroleum-based solvents are placed in 55-gallon drums or bowlers, stored at the waste oil storage area near the generation point, transported to the POL storage area, and emptied into the appropriate UST. A contractor periodically removes the wastes from the tanks.

B. Waste paints, thinners, and strippers are placed in 55-gallon drums, transported to the accumulation site (Bldg 1602), and stored until disposal as hazardous waste through DRMO. Stripping waste from 67 TRW Regional Corrosion Control is stored in a 6000-gallon UST until pumped out by a contractor. The waste is disposed as hazardous waste.

C. Soaps and cleaning compounds are rinsed down the drain to the sanitary sewer, in most cases via oil/water separators.

D. Waste antifreeze is either drummed and disposed as nonhazardous waste through DRMO or discharged down the drain to the sanitary sewer.

E. Waste emulsifier and dyn penetrant from NDI are drummed and disposed as hazardous waste through DRMO.

F. Waste fuel is taken to POL. Depending on the level of contamination, the fuel is either reclaimed or drummed for disposal as nonhazardous waste through DRMO. Some waste fuel is drained to oil/water separators connected to the sanitary sewer.

G. Waste fixers are processed through a silver recovery unit before being discharged to the sanitary sewer. Other photographic wastes are discharged to the sanitary sewer.

H. Electrolyte drained from unserviceable batteries is neutralized with baking soda and discharged down the drain to the sanitary sewer.

I. Used rags are either disposed as municipal waste or taken to linen exchange for cleaning and reuse. The 67 EMS Corrosion Control drums and disposes of rags contaminated with hazardous waste as hazardous waste.

J. 140 Solvent is used rather than PD-680. It is drummed and disposed as nonhazardous waste solvent through DRMO. 67 EMS Corrosion Control uses 140 Solvent on the washrack; it is discharged down the drain to an oil/water separator connected to the sanitary sewer.

K. Citrikleen is used in steam cleaners on washracks and discharged down the drain to oil/water separators connected to the sanitary sewer.

L. Materials contaminated with bodily fluids are incinerated at the hospital.

M. Used sharps are rendered unusable and unrecognizable before disposal as municipal waste.

N. Hospital laboratory wastes are autoclaved and disposed as municipal waste.

VII. FINDINGS, OBSERVATIONS, AND CONCLUSIONS

A. Wastewater Characterization Survey

1. The base is having difficulty meeting COD, BOD, and TSS discharge limits required by the City of Austin in order to avoid assessment of a surcharge for discharging abnormal industrial wastes to the City of Austin sanitary sewer system.

2. The BOD typically exceeded the discharge limit (200 mg/l) in samples collected from manholes servicing food-serving facilities and industrial facilities. High BOD concentrations from food-serving facilities can possibly be attributed to oils and greases passing through grease traps either because of inadequate frequency of servicing or hydraulic overloading or to the high use of food grinders. High BOD concentrations from industrial facilities can be attributed to the large quantity of soaps (2376 gallons/year) and solvents (4380 gallons/year) (see Appendix H) that are discharged to the sanitary sewer from these facilities. The BOD typically was within the limit at manholes servicing housing and domestic areas. The BOD of the base discharge (139.17 and 105.90 mg/l) to the City of Austin sanitary sewer system was well below the discharge limit.

3. The COD discharge limit (450 mg/l) was exceeded at the City of Austin manhole as well as at most sampling sites throughout the base. High COD concentrations can probably be attributed to the large quantity of soaps and solvents discharged to the sanitary sewer system.

4. The TSS discharge limit (200 mg/l) was not exceeded at any sampling site.

5. An indication of the industrial nature of wastewater can be obtained by calculating a BOD/COD ratio. The ratio of BOD to COD ranges in values between 0.0 and 1.0, but is normally substantially less than 1.0. A ratio of 0.5 or greater is obtained for most organics (including domestic sewage) and indicates high biodegradability. Man-made organics not normally found in nature (including chlorinated organics) are not as biodegradable, and their presence in a wastewater sample decreases the BOD/COD ratio. Industrial wastewater typically has a BOD/COD ratio in the 0.35 range or less. Results presented in Appendix C show that BAFFB effluent entering the City of Austin sanitary sewer system is industrial wastewater.

6. High levels of oils and greases were detected at 602 TACC Vehicle Maintenance, 67 TRANS Vehicle Maintenance, and 67 CRS Propulsion (189, 370, and 448 mg/l, respectively); the discharge limit is 200 mg/l. Most of the oils and greases detected at these sites were petroleum hydrocarbons (170, 340, and 389 mg/l, respectively). This indicates that either waste oil is being discharged directly to the sanitary sewer or the oil/water separators are not functioning properly.

7. An unusual level of titanium (6.4 mg/l) was detected at the manhole servicing the Hospital; there is not a discharge limit. Titanium is often used as a pigment in white paint. The level can probably be attributed to painting equipment washing operations conducted during the sample period.

8. High levels of iron were detected at Lift Station 160th, Site 36, and the water phase of the oil/water separator servicing 712 ASOC/LGKV (7.5, 8.7, and 77.6 mg/l, respectively); there is not a discharge limit. Sources of significant iron concentrations could include plumbing corrosion caused by acid discharge or removal of corrosion from vehicles and other equipment.

9. A high level of manganese (1.4 mg/l) was detected in the sample obtained from the water phase of the oil/water separator servicing 712 ASOC/LGKV. According to base personnel, high levels have been detected at various locations throughout the base in the past. No correlation of these levels has been made. The high levels probably indicate parts cleaning or possible pipe corrosion.

10. All volatile organic compound and volatile aromatic compound results were within discharge limits.

11. The COD (575 mg/l) was the only discharge limit that was exceeded at the City Of Austin manhole.

12. The 67 CRS Jet Engine Test Cell septic system provides a direct link between soluble components of fuels (xylene, toluene, and benzene) to be introduced into the subsurface, eventually into the underlying aquifer.

13. According to base personnel, the City of Austin obtains wastewater samples from main lift station wet well.

B. Hazardous Waste Survey

1. The base hazardous waste program is operating well. The hazardous waste training program is informative and shop specific. The waste analysis plan is comprehensive and thorough. Shop personnel are knowledgeable in proper waste disposal practices.

2. Citrikleen is used in steam cleaners for cleaning equipment and floors. Shop personnel are satisfied with its performance. This significantly reduces the amount of petroleum based solvents and surfactants discharged down the drain to the sanitary sewer.

3. Several shops store their waste storage drums on mobile trailers. This practice makes transporting the wastes from the shop to the POL USTs easier and allows the shop to maintain and reuse the waste storage drums.

4. The most significant hazardous waste problem is the shop's inability to transfer nonhazardous wastes from the shop to the POL USTs. The base is having problems finding a waste disposal contractor to remove and dispose of the tank wastes. As a result, many accumulation areas have a backlog of chemical wastes.

5. There is evidence of soil contamination (mainly oil) at the following accumulation sites: 67 CSG Auto Hobby Shop, 67th TRANS Vehicle Maintenance Shop, 67 TRANS Heavy Vehicle Maintenance Shop, 9th IFG Aerospace Ground Equipment Shop and the 712 ASUGS Vehicle Maintenance Shop. These spills might be attributed to the backlog of wastes accumulating at the sites.

6. Listed below are several potential environmental problems at the 67 CEI Protective Coating accumulation site: (1) the site is uncontrolled; (2) paint and thinner wastes are not segregated from new petroleum and chemical products; (3) thinner troughs used to clean paint brushes are exposed to the environment; (4) the stripping vat used for reconditioning aluminum signs is located outdoors with no means of containing chemical spills.

7. The 67 CES Power Production accumulation site is used by other shops in the Civil Engineering Complex. The site and waste storage drums are unsecured. Without chemical analysis, it is not possible to determine the constituents of each drum.

8. The floor drains in the 67 CRS Test Cell Shop lead to a drain field via an oil/water separator. Sampling has not been accomplished to determine chemical constituents (i.e., oil and grease, chemical oxygen demand, and surfactant concentration) of the wastewater entering the drain field.

9. The 67 EMI Wheel and Tire Shop drains the contents of the cleaning and degreasing vats (currently 140 Solvent) into an UST. The tank has not been leak tested for integrity.

10. To alleviate the problems associated with transporting waste oil and fluid from shops to storage areas, many Air Force installations have installed waste oil and fluid storage tanks similar to Figure 13. This method of oil storage significantly reduces the possibility of accidental spills.

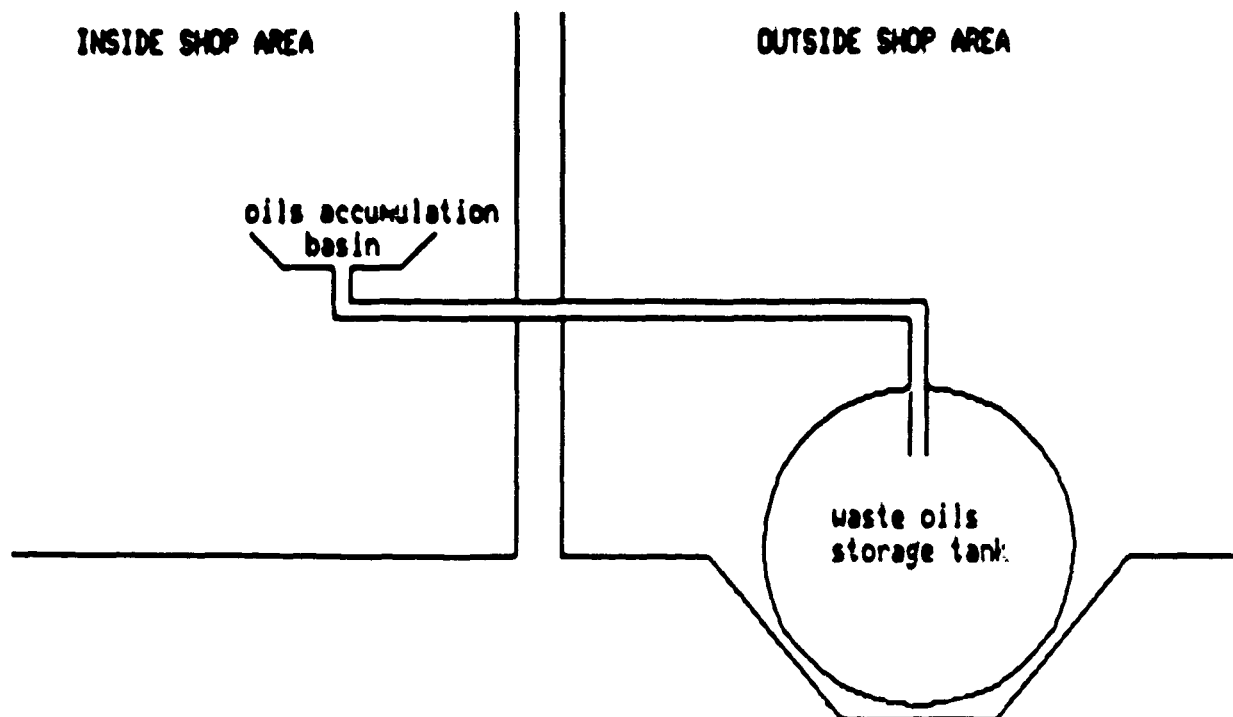


Figure 13: Waste Oil Storage Tank

VIII. RECOMMENDATIONS

A. Wastewater Characterization Survey

1. Base personnel should accompany City of Austin personnel during wastewater sampling procedures to verify the sampling technique used. The sample should be taken at the manhole exiting the main lift station rather than the lift station wet well. It is possible that the lift station where the sampling is performed is accumulating solids, oil and grease and that the samples are not representative of the base effluent. Also, the base should split samples with the City of Austin for comparison of results.

2. Base personnel should ensure that oil/water separators and grease traps are functioning properly and are cleaned out at an adequate frequency. This will help reduce the BOD and COD levels in the base effluent.

3. Industrial shop personnel should limit the quantity of soaps and solvents discharged down the drain to the sanitary sewer system. High soap and solvent usage is probably the primary cause of the BOD and COD problem.

B. Hazardous Waste Survey

1. A waste disposal contract should be established as soon as possible for the removal of the wastes stored in the POL USTs. Also, the wastes accumulating at various shops throughout the base should be disposed as soon as possible.

2. The oil contaminated soil at 67 CSG Auto Hobby Shop, 67 TRANS Vehicle Maintenance Shop, 67 TRANS Heavy Vehicle Maintenance Shop, 924 TFC Aerospace Ground Equipment Shop and the 712 ASOCS Vehicle Maintenance Shop should be removed, analyzed and properly disposed.

3. 67 TRANS and 67 CSG Auto Hobby Shop should consider building a waste oil storage tank similar to Figure 13. This arrangement prevents accidental oil spills.

4. The 67 CES Protective Coating aluminum sign reconditioning tank should be either moved indoors or secured, covered, and bermed. The paint brush cleaning tanks should be either moved indoors or covered with a lid and secured.

5. The floor drains from the 67th Test Cell should be connected to the sanitary sewer system rather the drain field if possible. This could prevent soil contamination problems in the future.

6. The 67 EMS Wheel and Tire Shop should discontinue using the UST for storing waste solvents. The UST should be removed according to an EPA approved closure plan.

7. The base should further explore opportunities for waste minimization at the Regional Corrosion Facility (Bldg 1608). Several options include (1) plastic media blasting; (2) stripper distillation; (3) stripper recovery and reuse accomplished by vacuuming the stripper from the aircraft rather than rinsing it with water. Any of these options would greatly reduce the amount of hazardous wastes generated at the facility.

8. Waste storage containers should be locked to prevent cross-contamination of wastes. Also, the accumulation site manager should document site activity by maintaining a log to include: (1) a unique sequence number to identify which wastestream generated the waste (each wastestream in a shop should have a unique number), (2) date, type, and amount of waste put into the drum (see Table 6 for example), and (3) start and stop dates of filling each drum. A uniform system for documentation should be used by all accumulation site managers on base. This type of log can provide documented rationale for applying user's knowledge rather than analytical results for waste disposal.

TABLE 6: EXAMPLE HAZARDOUS WASTE DISPOSAL LOG

PAINT SHOP HAZARDOUS WASTE DISPOSAL LOG FOR DRUM NUMBER: 1

Date	Type of Waste	Amount of Waste	Name & Signature
10 Jun 88	Enamel Paint	1 qt	
10 Jun 88	MEK	1 gal	
15 Jun 88	MEK	1 gal	
20 Jun 88	Polyurethane Paint	1 qt	
25 Jun 88	Polyurethane Thinner	1 gal	
30 Jun 88	MEK	10 gal	
5 Jul 88	Enamel Paint	1 qt	
6 Jul 88	MEK	2 gal	
6 Jul 88	Enamel Paint	1 qt	
7 Jul 88	MEK	2 gal	
8 Jul 88	MEK	2 gal	
9 Jul 88	MEK	2 gal	
11 Jul 88	MEK	2 gal	
13 Jul 88	Enamel Paint	1 qt	
13 Jul 88	MEK	2 gal	
14 Jul 88	MEK	2 gal	
16 Jul 88	Enamel Paint	1 qt	
16 Jul 88	MEK	5 gal	
18 Jul 88	Polyurethane Paint	2 qts	
18 Jul 88	Polyurethane Thinner	3 gal	
20 Jul 88	MEK	4 gal	
21 Jul 88	MEK	1 gal	
28 Jul 88	Enamel Paint	1 gal	
28 Jul 88	MEK	7 gal	

TOTAL: 50 gal

Amounts:

MEK	43.00 gal	86.0%
Polyurethane Thinner	4.00 gal	8.0%
Enamel Paint	2.25 gal	4.5%
Polyurethane Paint	0.75 gal	1.5%

9. The education and training program should provide opportunities for inputs from the BEE shop on the health hazards associated with hazardous waste since many shop personnel are physically involved with the handling of hazardous wastes. Also, DRMO should provide input on the present and future costs of disposing of hazardous wastes, the cost benefits of segregating wastes, and the turn-in procedures.

10. The current practice of disposing of ethylene glycol antifreeze as hazardous waste may be unnecessary since it is readily biodegradable, is diluted during use, and is further diluted in the sewer system. The Texas Water Commission recommends that the local sewer district be contacted to discuss the possibility of approving the disposal of waste antifreeze in the sewer system.

11. Although not required by law, it would be advantageous to Bergstrom AFB to upgrade the accumulation sites with, at a minimum, covers, locking fences, and impermeable, diked surfaces. These measures could help prevent the occurrence of environmental pollution incidents.

12. 67 TRANS General/Special Purpose Maintenance, 67 CSG Auto Hobby Shop, and 712 ASOC Vehicle Maintenance should consider using a milder soap rather than aircraft soap for cleaning floors and equipment. A milder soap could possibly help lower the COD levels in the wastewater.

13. All shops that use Speedy Dry should consider using an alternate absorbent material such as one that is siliceous-based. This type absorbent material reduces clean up time, requires less absorbent, and reduces the quantity of hazardous waste generated.

14. DRMO should be contacted to determine if it is possible to find a local contractor who will accept wet lead-acid batteries. This would eliminate the need for neutralizing, sampling, analyzing, and disposing of the spent electrolyte.

15. All shops on base should consider the possibility of sending dirty rags to linen exchange for cleaning rather than disposing of them after one use. This option may not be feasible in all situations but may prove to be beneficial in others.

16. DEEV should ensure that all accumulation site and satellite accumulation site primary and alternate managers receive hazardous waste training before assuming the position.

REFERENCES

1. APHA, Standard Methods for the Examination of Water and Wastewater, 16th Ed., American Public Health Association, Washington DC, 1985.
2. USEPA, Methods for Chemical Analysis of Water and Wastewater, EPA-600/45-79-020, March 1983.
3. Code of Federal Regulations, Title 40, Section 261, Office of the Federal Register, Washington DC, 1987.
4. USEPA, Test Methods for Evaluating Solid Waste, SW-846, 2nd Edition, April 1984.
5. City of Austin Ordinance No. 82-1209 - F.
6. "Management of Hazardous Waste Plan 19-1, Bergstrom AFB TX," May 1987.
7. "Bergstrom AFB TX Waste Analysis Plan."
8. "Wastewater Characterization Survey Plan, Bergstrom AFB TX," January 1989.
9. "Bergstrom AFB Hazardous Waste Survey Notes," Lt Anthony Zimmer, March 1989

APPENDIX A
REQUEST LETTER

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file 13-B-1



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 67TH COMBAT SUPPORT GROUP (TAC)
BERGSTROM AIR FORCE BASE TX 76743-5000

REPLY TO
ATTN OF CC

29 AUG 1968

SUBJECT Request for OEHL to Conduct a Detailed Wastewater Characterization Study

TO HQ TAC/DEEV

1. We are restricted by city ordinance to discharge sanitary sewage which has a BOD of less than 200 mg/l, COD of less than 450 mg/l and TSS of less than 200 mg/l. Failure to comply results in surcharges to cover the additional costs of treating the wastewater. This year we were levied a surcharge of approximately \$11,000 per month. In the past we have been within the ordinance limits. In addition, possible discharge of listed hazardous wastes could place us in violation of the land ban restrictions. Request that OEHL be tasked to conduct a detailed wastewater characterization study.

2. Should you have any questions, please contact Mrs Patricia Chilton at AV 685-2494.

Don A. Lyon
DON A. LYON, Colonel USAF
Commander

cc: 67 TRW/SQ/SGPB *mgj*

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APPENDIX 9

CITY OF AUSTIN ORDINANCE NO. 82 1209 - F

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REGULATING THE DISCHARGE OF INDUSTRIAL WASTE INTO THE SANITARY SEWERAGE SYSTEM - OF THE CITY OF AUSTIN BY REPEALING CHAPTER 12-2 OF THE AUSTIN CITY CODE OF 1981 PROVIDING A NEW CHAPTER 12-2 THEREFOR; DEFINING TERMS; PROHIBITING DISCHARGES OF CERTAIN SUBSTANCES INTO SANITARY SEWERS; PROHIBITING DISCHARGE OF DRAINAGE WATER INTO CATCH BASINS AND HOLD-HAUL TANKS; PROVIDING SPECIAL REQUIREMENTS FOR CAR WASH FACILITIES; SERVICE STATIONS AND SIMILAR INSTALLATIONS, MACHINE SHOPS, GARAGES, SPECIAL MANUFACTURING FACILITIES, AND STEAM CLEANING AND CHEMICAL CLEANING FACILITIES; PROCEDURES RELATING TO INDUSTRIAL WASTE; PROVIDING LIMITATIONS ON DISCLOSURE OF CONFIDENTIAL DATA; PROVIDING REMEDIES FOR A VIOLATION HEREOF; MAKING THIS ORDINANCE CUMULATIVE OF PRIOR ORDINANCES; PROVIDING REMEDIES AND PENALTIES; REPEALING ALL ORDINANCES IN CONFLICT HEREWITH; PROVIDING A SEVERABILITY CLAUSE; SUSPENDING THE RULE REQUIRING THE READING OF ORDINANCES ON THREE (3) SEPARATE DAYS; AND DECLARING AN EMERGENCY.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF AUSTIN:

PART 1. That sections 12-2-76 through 12-2-121 of the Austin City Code of 1981 are hereby repealed. New sections are substituted therefor which shall hereafter read as follows:

Chapter 12-2. Discharges sanitary sewer system -
certain discharges prohibited; regulations
governing industrial waste.

Sec. 12-2-76. Definitions - All terms used in this section are
as defined in Title 40 Code of Federal Regulations
Part 403 and/or the Glossary, Water and Wastewater
Control Engineering except as defined below.

- (1) Abnormal Industrial Waste - By the term Abnormal Industrial Waste is meant any industrial waste having a SS, COD, or BOD content in excess of that found in normal waste, but which is otherwise acceptable into a sanitary sewer under the terms of this Section of the Code.
- (2) Approved Methods - By the term Approved Methods is meant the latest edition of Standard Methods for the examination of Water and Wastewater (standard methods) prepared and published jointly by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation, and/or the guidelines published by the U.S. Environmental Protection Agency in Title 40, Code of Federal Regulations, Part 136. In the event these publications do not include the procedure for analysis of certain constituents named herein, that procedure as given in other

nationally recognized laboratory analysis manuals will be acceptable at the approval of the Director.

- (3) BOD (Denoting Biochemical Oxygen Demand) - By the term BOD is meant the quantity of oxygen utilized in the biochemical oxidation of organic matter as determined by standard laboratory procedure as specified in standard methods in five (5) days at twenty degrees centigrade expressed as milligrams per liter (MG/L).
- (4) COD (Denoting Chemical Oxygen Demand) - By the term COD is meant the measure of the oxygen-consuming capacity of inorganic and organic matter present in water, sewage, industrial waste, or other liquid as determined by standard laboratory procedure as specified in standard methods expressed as milligrams per liter (MG/L).
- (5) Comminuted Garbage - By the term Comminuted Garbage is meant garbage that has been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in sanitary sewers, with no particle greater than one half (1/2) inch in any dimension.
- (6) Cooling Water - By the term Cooling Water is meant the water discharged from any system of condensation, such as air conditioning, cooling, and refrigeration systems. The humidity removed by the condensing unit is exempt from the definition where the volume of such discharge is not significant as determined by the Director.
- (7) Director - By the term Director is meant the Director of the City of Austin Water and Wastewater Department or his authorized representative, unless otherwise specified.
- (8) Drainage Water - By the term Drainage Water is meant storm water; roof run-off water; subsurface and subsoil drainage water; drainage from down spouts; water from yard drains; water from fountains, ponds and swimming pools; water from lawn sprays, rainwater leaders, and area-ways; overflows from cisterns and water tanks; cooling water.

- (9) Dual Discharger - By the term Dual Discharger is meant a person who has an industrial waste discharge to the storm sewer system and the sanitary sewer system of the City of Austin. The industrial waste discharge to the storm sewer system includes rainwater collected on a surface where pollutants controlled by the Industrial Waste Ordinance may be used, drained, and/or spilled.
- (10) Garbage - By the term Garbage is meant solid waste from domestic or commercial preparation, cooking, dispensing or manufacturing of food or from the handling, storage and sale of produce.
- (11) Hold-Haul Tank - By the term Hold-Haul Tank is meant a storage tank installed by the customer to hold such industrial waste which is prohibited from being discharged to the sanitary sewer and from which the contents must be hauled to a disposal site. Such holding tank shall not be connected to the sanitary sewer.
- (12) Industrial Waste - By the term Industrial Waste is meant any amount of liquid waste and water borne liquid, gaseous, and solid substances discharged or disposed of from any industrial, manufacturing, trade or commercial establishment including non-profit organizations, governmental agencies or business activities. Such term shall not include sewage discharged from sanitary conveniences on the premises unless such average is commingled with above waste.
- (13) Industrial Waste Permit - By the term Industrial Waste Permit is meant a permit to deposit or discharge industrial waste into the sanitary sewer. The permit charge is to cover the cost to issue the permit and to inspect the facility. This permit does not grant a waiver to allow discharge of any wastes that exceed the limits or is in violation of the requirements of this Ordinance.
- (14) Major Wastewater Discharger - By the term Major Wastewater Discharger is meant any person that:
- (a) normally uses any compound referred to in Section 307(A)(1) of the Clean Water Act of 1977, and presently listed in Appendix B, Title 40 Code of Federal Regulations Part 403 in a process that has a waste

discharge to the sanitary sewer system;
or,

(b) has had any of the afore listed compounds found in their process waste stream during regular sampling and testing by the Director; or,

(c) has a wastewater average of 250,000 gallons per month or greater.

(15) National Pretreatment Standard - By the term National Pretreatment Standard, Pretreatment Standard or Standard is meant any regulations containing pollutant discharge limits promulgated by EPA in accordance with Section 307(b) and (c) of the Clean Water Act of 1977, which applies to industrial users. This term includes prohibited discharge limits established pursuant to Title 40 Code of Federal Regulations Part 403.5.

(16) Normal Waste - By the term Normal Waste is meant waste which, when analyzed, indicates that:

(a) The concentration of BOD in the waste will not exceed 200 milligrams per liter (MG/L) average over any 24-hour period or will not contribute BOD at a rate which would exceed 1,668 pounds of BOD per million gallons of sewage per day;

(b) The concentration of suspended solids (SS) in the waste will not exceed 200 milligrams per liter (MG/L) average over any 24-hour period or will not contribute suspended solids at a rate which would exceed 1,668 pounds of suspended solids per million gallons of waste per day; and,

(c) The concentration of COD in the waste will not exceed 450 milligrams per liter (MG/L) average over any 24-hour period or will not contribute COD at a rate which would exceed 3,735 pounds of COD per million gallons of waste per day.

(17) Other Wastes - By the term Other Wastes is meant solid or viscous substances such as, but not limited to, ashes, cinders, sand, concrete, mud, straw, shavings, metal, glass, rags, feathers, tar asphalt, plastics, rubber, rubber products, wood, whole non-human blood, paunch

manure, hair and fleshings, entrails, lime slurry, lime residues, carbide wastes, slops, chemical residues, paint residues, asbestos, bulk solids, grass clippings or tree trimmings.

- (18) Owner or Occupant - By the term Owner or Occupant is meant the person who pays, or is legally responsible for a payment of water and/or wastewater charges made against a plot, parcel of land, building office premises, if connected to the water distribution system and/or the wastewater collection system maintained by the City of Austin, or who should pay or be legally responsible for such payment if so connected.
- (19) Person - By the term Person is meant any individual, business entity, partnership, corporation, governmental agency, political subdivision, or any other legal entity.
- (20) pH - By the term pH is meant the logarithm of the reciprocal of the hydrogen ion concentration. The concentration is the weight of hydrogen ions, in grams per liter of solution as measured and calculated in accordance with standard methods.
- (21) Pollution - By the term Pollution is meant the alteration of physical, thermal, chemical radiological or biological quality of, or the contamination of, any water in the City of Austin to the extent that the water is rendered harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or that impairs the usefulness of the public enjoyment of the water for any lawful or reasonable purpose.
- (22) Prohibited Waste - The term Prohibited Waste shall mean any waste which is totally restricted from discharge into the sanitary sewer system of the City of Austin by this Ordinance or the amount in the waste stream prior to pretreatment above the limits listed in this Ordinance.
- (23) Receiving Stream - By the term Receiving Stream is meant the waterway into which a wastewater treatment plant operated by the City of Austin discharges the treated effluent.

- (24) Sampling and Testing Costs - By the term Sampling and Testing Costs shall mean the cost to the City of Austin for field sampling and laboratory testing the industrial waste from a person to determine their surcharge and/or compliance with the Industrial Waste Ordinance. This applies to samples taken for sanitary sewer discharges and storm sewer discharges.
- (25) Sanitary Convenience - By the term Sanitary Convenience is meant any plumbing fixture (except for a food waste disposal unit) not required to have a sand and/or grease trap (interceptor) according to provisions of the Plumbing Code.
- (26) Sanitary Sewer - By the term Sanitary Sewer is meant a pipe or conduit owned, controlled or subject to the jurisdiction of the City of Austin, designed to collect and transport sewage and industrial waste.
- (27) Sewage - By the term Sewage is meant waterborne waste normally discharging from the sanitary conveniences of dwellings (including apartment houses), hotels, office buildings, factories and institutions, free from storm surface water and industrial wastes.
- (28) Sewer System - By the term Sewer System is meant all of the property involved in the operation of a sanitary sewer utility. It includes land, wastewater lines and appurtenances, pumping stations, treatment works, wastewater treatment plants, and general property.
- (29) Similar Installation - By the term Similar Installation is meant gasoline dispensing facilities which furnish equipment for, and have designated areas for, any of the following types of vehicle maintenance service: oil changes, lubrication, mechanical repair, or car wash.
- (30) SS (Denoting Suspended Solids) - By the term SS is meant solids that either float on the surface of, or are in suspension in, water, sewage, industrial waste, or other liquid and which are removable by laboratory filtering as specified in Standard Methods expressed as milligrams per liter (MG/L).

- (31) Storm Sewer - By the term Storm Sewer is meant any sewer owned, controlled or subject to the jurisdiction of the City of Austin designed to carry storm and surface water, street wash, and drainage water.
- (32) Surcharge - By the term Surcharge is meant the additional sewerage service charge levied against any person for discharging abnormal industrial waste into a sanitary sewer. This charge is intended to defray the added cost of sampling, testing, transporting and treating abnormal industrial waste. This charge shall be in addition to the usual monthly charge for sanitary sewage service.
- (33) To Discharge - By the term To Discharge is meant to deposit, conduct, drain, emit, throw, run, allow to seep, or otherwise release or dispose of, or to allow, permit or suffer any of these acts or omissions.
- (34) Treatment Plant Upset - An inhibition or disruption of the treatment plant, its treatment processes or operations, or its sludge processes, use or disposal which is a cause of or significantly contributes to (i) a violation of any requirement of the treatment plant's NPDES permit (including an increase in the magnitude or duration of a violation) (ii) the prevention of sewage sludge use or disposal by the treatment plant in accordance with all applicable federal and state laws and regulations and City of Austin ordinances, (iii) a decrease in the quality of the effluent being discharged from the treatment plant or (iv) a decrease in the performance of the treatment plant processes or operations.
- (35) Non-Flow Measured Wastewater Line - By the term Non-Flow Measured Wastewater Line shall mean two (2) or more main house laterals through which water metered through a single City of Austin water meter is discharged into the sanitary sewer or on which an open channel flow meter approved by the Director exists.
- (36) Waste and/or Wastewater - By the term Waste and/or Wastewater is meant sewage, industrial waste, or wastes, and drainage water.
- (37) Wastewater Treatment Plant - By the term Wastewater Treatment Plant is meant any

arrangement of devices of structures used for treating wastewater.

- (38) Watercourse - By the term Watercourse is meant any natural or artificial channel for the passage of water.

Sec. 12-2-77. ~~Prohibited Discharges and Limitations.~~ No person may discharge or cause, suffer, allow, or permit to be discharged into any sanitary sewer, any of the following:

- (1) Other Waste, as defined herein, except as specifically authorized by the Director pursuant to Part 1(E).
- (2) ~~Flammable~~ or explosive liquids, solids, or gases, such as, but not limited to, gasoline, kerosene, benzene, naphtha, solvents, and similar substances.
- (3) Pollutants regulated pursuant to any categorical pretreatment standard promulgated by EPA in a concentration or in an amount which is in excess of the limit specified in such standard.
- (4) Organic pollutants referred to in Section 307(A)(1) of the Clean Water Act of 1977, and presently listed in Appendix B to Title 40 Code of Federal Regulations Part 403 that are used in a manufacturing process shall be segregated from wastewater discharged to the extent it is feasible to do so. No such pollutants shall be discharged to the sanitary sewer system in a concentration or amount sufficient to cause any of the following:
 - (i) Cause a treatment plant upset;
 - (ii) Cause the treatment plant to be in violation of its National Pollutant Discharge Elimination System ("NPDES") permit;
 - (iii) Cause any harmful or destructive condition in the City of Austin collection system;
 - (iv) Cause any of the organic pollutants referred to in Section 307(A)(1) of the Clean Water Act of 1977, and presently listed in Appendix B to Title 40 Code of Federal Regulations Part 403 to exist in the Publicly Owned Treatment Works

effluent or sludge in excess of the limitations established in the relevant Federal Rules and Regulations.

- (5) Any liquid or vapor having a temperature of 120°F (48.9°C) or higher, or at a temperature that will increase the influent to the treatment plant to 104°F (40° C) or higher.
- (6) Any wax, grease, oil, plastic, or any other substance that will solidify or become discernibly viscous at any temperature between 55°F (12.8°C) and 90°F (32.2°C).
- (7) Garbage other than comminuted garbage.
- (8) Noxious or malodorous substances, such as, but not limited to, hydrogen sulfide, sulphur dioxide, or nitrogen oxides, which, either singly or by interaction with other materials, are capable of causing objectionable odors of hazards to life.
- (9) Any substance or material which:
 - (a) forms solids in concentrations exceeding the limits established in this Ordinance; or,
 - (b) creates a condition deleterious to any sewer system or treatment process owned or operated by the City of Austin; or,
 - (c) requires unusual provisions, attention, or expense to handle in the sewer system.
- (10) Any visible free animal, vegetable, or mineral oil and grease or a total animal, vegetable, or mineral oil and grease exceeding two (200) milligrams per liter over a 24-hour period or being discharged at a rate which would contribute in excess of 1668 pounds of such oil or grease per million gallons of wastewater per 24 hours; provided however, that neither the two hundred (200) milligram maximum nor the 1668 pounds per million gallon maximum, as set forth above, shall be applied to any establishment which currently holds a wastewater permit and which by continuously adhering to all procedures recommended by the Director as means of reducing the discharge of visible free animal, vegetable, or mineral oil and grease is unable to meet the present standard without significant material alteration of the real property.

This exception shall be limited in duration until either the wastewater permit is cancelled for some other reason or remodeling of the premises makes the installation of new or improved wastewater facilities practical.

- (11) Acids or alkalies which attack or corrode sewer system.
- (12) Substances having a pH value lower than 6.0 or higher than 11.0.
- (13) Any of the following elements in solution or suspension in concentrations exceeding the limit set as follows:

Element	Maximum Concentration in MG/L
Arsenic	0.05
Barium	5.0
Boron	3.0
Cadmium	0.7
Chromium	5.0
Copper	4.5
Lead	0.1
Manganese	1.0
Mercury	0.005
Nickel	1.0
Selenium	0.4
Silver	1.0
Zinc	5.0

Dilution of these elements in solution or suspension in lieu of treatment or removal is specifically prohibited. The Director may further restrict the discharges of those wastes which contain these elements to a definite limit expressed in the units of "pounds per day" to prevent the employment of dilution of such pollutants in order to meet the concentration limits of the ordinance.

- (14) Cyanides in excess of 2.0 milligrams per liter (mg/l), as CN.
- (15) ~~Phenols or other substances in such concentrations as to produce odor or taste in the waters receiving wastewater treatment plant effluent, where used as drinking water by other people.~~
- (16) Phosphorous in excess of 15 milligrams per liter (MG/L) as phosphorous or phosphates in

excess of 45 milligrams per liter (MG/L) as
PO4.

- (17) Sulfates in excess of five hundred milligrams per liter (500 MG/L).
- (18) Fluorides in excess of 5.0 milligrams per liter (MG/L).
- (19) Any herbicides, pesticides, fungicides, such as, but not limited to chlordane, heptachlor, heptachlor epoxide, aldrin, dieldrin, dichlorodiphenyl trichloro ethane (DDT), dichlorodiphenyl dichloro ethene (DDE), rothane (DPD), or any toxic, poisonous, or other substance that would injure or interfere with the wastewater treatment process, or constitute a hazard to human or animal plant life, including aquatic organisms, or create any hazards in the waters receiving the wastewater treatment plant effluent.
- (20) Waste containing radioactive materials in concentrations greater than allowable by current regulations of the Texas Department of Health. $\alpha \beta \gamma$
- (21) Any of the following:
 - (a) solids or viscous pollutants in amounts which will cause obstruction to the flow in the collection system and/or the treatment plant resulting in interference;
 - (b) any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interferences with the treatment plant and/or collection system;
 - (c) any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes, vegetable tanning solutions, and whole blood.
- (22) The maximum concentration of waste constituents other than those named in this section acceptable for discharge into the sanitary sewer system will be those levels as specified by the ~~TWC Texas Department of Water Resources~~ or other appropriate governmental unit or agency.

Sec. 12-2-78. Drainage Water Prohibited. No person may discharge or cause, suffer, allow, or permit to be discharged into a sanitary sewer, any drainage water, as defined herein, except as listed below or approved by the Director.

- (1) Filter backwash water from swimming pool filters may discharge to the sanitary sewer if the flow rate does not exceed 20 gallons per minute and the plumbing is so designed that the pool itself may not drain directly into the sanitary sewer. For diatomaceous earth type filters, the filter backwash water must pass through an approved catch filter before discharging to the sanitary sewer. The catch filter shall be of the same physical dimensions as the filter tank and be equipped with a suitable filter cloth that will retain all diatomaceous earth.
- (2) Single-Pass Cooling Water. The City discourages the discharge of single-pass cooling water into the sanitary sewer, but will permit it to be discharged into the storm sewer if it has not become contaminated in the cooling process. Single-pass cooling water used in laboratories that use regular table or counter top facilities and/or bench scale facilities is exempted from the volume and percentages in all sections of the following three paragraphs. Laboratories carrying out pilot plant operations or that have manufacturing scale facilities are not exempted. For the purpose of this paragraph, the word contaminated means water which does not meet the quality criteria of Chapter 13 (Storm Sewer Ordinance) of the Austin City Code.
- (3) Existing installations including modification and modernization after April, 1978. Single-pass cooling water shall not be discharged to the sanitary sewer in a greater amount than the following percent of the average monthly water usage:

10% for 1982-83;

5% for 1984 and thereafter; or one (1) gallon per minute whichever is greater;

Measurement of single-pass cooling water discharged to the sanitary sewer. The customer shall supply necessary data and assist in

determining the amount of single-pass cooling water that is being discharged into sanitary sewer. If the customer does not agree with the results of the City's survey, he may install measuring devices to determine the consumption of this single-pass cooling water;

Only the Director may grant special approval for the single-pass cooling water to exceed these limits if the Director finds:

- (i) The wastewater treatment system of the City would not be adversely affected thereby; and,
 - (ii) The applicant will suffer substantial economic hardship unless the percent limit is waived; or,
 - (iii) The environment of the receiving stream will be harmed unless the percent limited is waived.
- (4) Blow down, bleed water, or overflow water from boilers or cooling towers may not be discharged to the sanitary sewer at a rate greater than five gallons per minute or one percent of the recycle water rate as designated by the equipment.

(Sec) 12-2-79. Pretreatment and Disposal of Prohibited Wastes.

- (1) Pretreatment of Prohibited Waste. Any person generating waste prohibited from discharge into a sanitary sewer by the foregoing shall pretreat or otherwise dispose of the prohibited waste so as to make the waste actually discharged to the sanitary sewer acceptable under the standards established in this section. The Director shall be furnished plans and/or specifications of the pretreatment system for review to assure that the system is in compliance with generally recognized engineering standards, but this review does not relieve the customer from his obligation to install, operate, maintain and, if necessary modify the system so that the discharge is in compliance with this Ordinance.
- (2) Grease, Oil and Sand Traps, Interceptors or Hold-Haul Tanks. Grease, oil and sand traps, interceptors, or hold-haul tanks shall be provided for the proper handling of waste containing grease in amounts above the limits

herein, sand and other material deemed harmful to the treatment plant and/or collection system by the Director. However interceptors and traps are not required for private living quarters or dwellings. All interceptors, and traps, shall be installed outside of the building where the waste is generated unless a variance is obtained from the Director in writing. All interceptors and traps shall meet the standards prescribed in the rules and procedures prepared or filed in the Office of the Director. The rules and procedures may be revised from time to time as necessary. ~~Interceptors and trap basins shall be located so as to be readily and easily accessible for easy cleaning and inspection.~~ Grease and oil interceptors shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction and equipped with easily removable covers or grates. Where installed, all grease, oil and sand traps and/or interceptors shall be maintained by the owner or occupant at his own expense, in continuously efficient operation at all times.

- (3) Materials Removed from Pretreatment Facilities. Storage, handling, disposal and transportation of these wastes shall be done according to all applicable federal, state and local regulations that pertain to the type and/or class of waste generated.
- (4) Specific Requirements and Exemptions:
 - (a) Vehicle Wash Facilities. Any industry engaging in the washing of motorized vehicles whether utilizing automated equipment or hand washing required to ~~discharge into the sanitary sewer system of the City of Austin, shall discharge through a sand and grease interceptor approved by the Director.~~ The wash area shall be located and covered so that rain water does not enter the sanitary sewer. Existing installations may apply to the Director for a variance if these conditions are impossible to meet;
 - (b) Minor Vehicle Maintenance Areas. Areas where minor vehicle repairs, such as engine tune-up, air conditioning repair, radiator flushing and repair, electrical repair, front end alignments, exhaust

system replacement and repair, suspension system replacement and repair, brake shoe replacement may discharge floor wash water to the sanitary sewer through a properly sized sand and grease trap;

- (c) Major Vehicle Maintenance Areas and Fluid Change Areas. Areas where major vehicle repairs such as engine dismantling, transmission repairs, hydraulic system repairs, differential repair, and/or rebuilding of any of the above parts or fluid changing shall not have a floor drain or other device where wastewater may discharge directly to the sanitary sewer. These areas shall be physically separated from any area that drains into the sanitary sewer. All drainage from these areas shall discharge into a hold-haul tank;
 - (d) Steam Cleaning and Chemical Cleaning Facilities. Drainage from steam cleaning and/or chemical cleaning facilities shall not be discharged to the sanitary sewer unless a facility or process is provided that will consistently produce an effluent that is in compliance with this Ordinance particularly in regards to grease, oils, organics and phosphates;
 - (e) Grease and Sand Trap Maintenance Notification. Any industry with grease and sand trap pretreatment tanks shall make the most recent waste haulers trip ticket available to the industrial waste inspector at the service location. The hauler trip ticket shall reflect the date that the tank was emptied, who emptied the tank, and where in that county the waste was delivered, reflecting that it was disposed of in a manner and at a location in Travis County approved by all federal, state and local regulations that pertain to this type and/or class of waste.
- (5) National Pretreatment Standards. Any industry falling within any industrial category subject to categorical pretreatment standards promulgated pursuant to Section 307(b) and (c) of the Clean Water Act of 1977 shall comply with all regulations, pretreatment requirements, and/or discharge limits applicable to that particular industrial category. National pretreatment regulations take precedent over this Ordinance;

provided, however, such industry shall continue to meet specific discharge limits set forth in this Ordinance which are not inconsistent with the categorical pretreatment standards applicable to its industry, and more stringent local standards which have been justified.

Sec. 12-2-80. Special Procedures Relating to Industrial Waste.

- (1) Permits. After the effective date of this Ordinance, it shall be unlawful for any person to deposit or discharge industrial waste into any sanitary sewer without having made application and obtained an Industrial Waste Permit and having complied with all of the applicable provisions hereof. Any person desiring to deposit or discharge, or who is now depositing or discharging industrial waste into any sanitary sewer shall make application to the Director for his approval or disapproval. The application shall contain sufficient information regarding the discharge of pollutants including those referred to in Section 307(a) of the Clean Water Act of 1977, and listed in Appendix B to Title 40 Code of Federal Regulations Part 403, for the Director to determine if the owner or occupant will comply with the prohibitions and pretreatment requirements set out in this Ordinance. The Director shall approve such applications and grant an Industrial Waste Permit only when the evidence submitted by the applicant demonstrates that the industrial waste to be deposited by the applicant in the sanitary sewer will comply with this Ordinance and regulations promulgated pursuant thereto and after advertising his intent in the public notice section of the newspaper with the largest circulation prior to issuance. The Director shall approve the methodology used by the applicant in developing the documentation required hereunder.

If the Director denies the permit or disapproves it pending receipt of additional information, he shall notify the applicant in writing via certified mail. His letter to the applicant shall be accompanied by a detailed statement of the reasons for such action. The reasons shall be based upon provisions in this Ordinance.

The Director shall notify the public by at least December 1 that industrial Waste Permits under this Ordinance expire on December 31 of

each year and must be renewed annually by January 1 of the succeeding year if the discharge will be continued into the succeeding year. The fee for new permits will be prorated by quarter of a year for the first year only.

Prior to renewal of the industrial waste permit, the applicant shall provide the Director with evidence that all residues generated by pretreatment systems have been legally disposed of in accordance with all federal, state, and local regulations.

Upon the change of ownership of an industry, the new owner may have an existing valid permit for that industry transferred into his name by submitting a new permit application containing sufficient information regarding the discharge of pollutants including those referred to in Section 307(a) of the Clean Water Act of 1977, and listed in Appendix B to Title 40 Code of Federal Regulations Part 403.

This application shall be made within sixty (60) days of change of ownership. An administrative fee shall be set by the City Council for such transfer of a permit. If the Director has not been notified by certified mail including the application, the existing permit shall be null and void, and an application and approval for a new permit must be made by the new owner prior to any further discharge by the industry.

The Cost for Industrial Waste Permits shall be set by the City Council and become effective at the time of adoption. Those people who have not paid for their Industrial Waste Permit by February 28 of the Permit Year shall be assessed a late fee. The amount of this late fee is set by the City Council.

- (2) Exemptions to Permit Requirement Described in Paragraph E Subsection (1) above. The following establishments shall be exempted from the permit requirement of Subsection E(1) above:

- (a) single family residences; (b) residential duplexes; (c) medical and dental offices with not more than two offices per establishment, each having limited x-ray and laboratory facilities; (d) bars and lounges with no food service; (e) day care nurseries; (f) frater-

nities, sororities and boarding houses without cafeteria or food preparation facilities; (g) apartment buildings without a swimming pool, club room where food is prepared, and air conditioning using a cooling tower; (h) office buildings which do not have food preparation facilities, cooling tower, major laboratory or commercial processing service involving large water discharges; (i) hotels and motels without food service, laundry, swimming pool or cooling tower; (j) other commercial buildings discharging only sanitary wastes such as, but not limited to, clothing stores, shoe stores, appliance and hardware stores, jewelry stores, etc; (k) grocery stores not having garbage grinder meat market, bakery, or delicatessen; (l) barber shops, barber schools, beauty shops, and beauty schools; (m) movie theaters; (n) funeral parlors.

- (3) Multiple use buildings (such as shopping centers, medical service buildings, etc.) having one water meter or more than one water meter issued to the same person. One permit shall be issued to the person in whose name the water bill is issued. The quality and volume of discharge from the building shall be monitored by the City and the owner shall be responsible for the discharge and shall be billed accordingly. Should the owner choose some other arrangement, such arrangement shall be approved by the Director in writing.
- (4) Structures Required. Any owner discharging industrial wastes into a sanitary sewer shall construct a suitable sampling port or control manhole at or near the property line. The port or manhole shall intersect the common building drain line at a point downstream from the last connection to this building drain line. If the owner has more than one drain line connected to the City's sanitary sewer, a sampling port or control manhole must be constructed on each drain line.

In those situations where there are unusual volumes of industrial waste or the character of the industrial waste exceeds that of normal waste at certain times within a 24-hour period, a flow-equalizing tank may be required so that the discharge over a 24-hour period complies with the normal waste quality and flow requirement.

The sampling port, control manhold and/or flow equalizing tank' shall be constructed and/or installed at the expense of the owner who is discharging the industrial waste after the plans of the structure have been reviewed by the Director. It also shall be the responsibility of the owner to maintain the sampling port, control manhole, and/or equalizing tank in a safe and proper operating condition and be accessible during regular working hours.

- (5) Disconnection. If any person depositing or discharging industrial waste into a public sewer fails to secure an Industrial Waste Permit within the time prescribed herein, or if any person allows or causes industrial waste of unlawful quality under the requirements of this section of the Code to be discharged into any sanitary sewer, the Director is authorized, if such person is using City water, to disconnect such person's service line from the City Water system and/or the sanitary sewer and the same, at the approval of the Director, shall only be reconnected at the expense of the owner or occupant. If such person does not use City water the Director is authorized to disconnect such Person's service line from any sanitary sewer and the same shall only be reconnected at the expense of the owner or occupant after approval of the Director. The Director shall notify the owner or occupant of the premises where the waste is generated that a waste of unlawful quality is being discharged and shall afford such person a reasonable opportunity to present evidence to the Director that he is in compliance with this Ordinance. If such person does not present such evidence, the Director shall disconnect the water and/or sewage service line after giving at least 24-hours prior notice. No public sewer connection or water connection disconnected hereunder shall be reconnected until the condition causing the disconnection has been corrected, and the correction is of a permanent nature.
- (6) Measurement of Flow. The volume of flow used in computing surcharges shall be based upon the actual water used for December, January and February billing periods during these three billing periods and the average of these three billing periods or the actual consumption, whichever is less for the March through November billing periods.

If a person has a substantial portion of the metered water that does not reach the sanitary sewer system he may, at his own expense and with the approval of the Director, install a separate City of Austin water meter at the property line or measure the actual flow into the sanitary sewer. If the actual flow to the sanitary sewer is measured, the equipment used for measuring the flow, the flow reporting procedure and the billing procedures used shall be determined by a separate contractual agreement between the owner and the City of Austin.

If the owner requests all wastewater charges computed using the actual measured volume discharged to the sanitary sewer the Utility Customer Service Office shall be involved in any and all contracts.

After the effective date of this Ordinance no person may discharge wastewater into the sanitary sewer system through a non-flow measured wastewater line, except as may be specifically provided in the industrial waste discharge permit.

- (7) Determining the character and concentration of industrial waste. The industrial waste discharged or deposited into a sanitary sewer shall be subject to periodic inspection and sampling as often as may be deemed necessary by the Director. Samples shall be collected in such manner as to be representative of the character and concentration of the waste under operational conditions. The laboratory methods used in the examination of the samples shall be those set forth in the approved methods. The sampling schedule or program for determining the character and concentration of industrial waste shall be made by the Director at such times and on such basis as he may reasonably establish. Should the owner or occupant discharging industrial waste to a sanitary sewer desire that a determination of the quality of such industrial waste be made at some time other than that scheduled by the Director, such special determination may be made by the Director at the expense of the owner or occupant discharging the waste. Anyone found to have a discharge in violation of any part of this Ordinance may be charged a fee to cover the sampling and laboratory testing of all samples taken until the discharge is brought into compliance.

- (8) Self Monitoring. Industries that have National Pretreatment Requirements promulgated by EPA shall follow the self-monitoring and reporting requirements published in the Federal Register. Any other industry that discharges wastes to the sanitary sewer system of the City of Austin that is regulated by this Ordinance may, at either their option or the Director's option take periodic samples, analyze the samples for the presence and/or quantity of pollutants listed in this Ordinance and report the results to the Director. The frequency and methods of sampling and analysis shall be congruent with approved methods. Self-monitoring shall not replace the regular sampling and testing routine of the City of Austin.

The Director may require owners or occupants who use pretreatment facilities prior to discharging into a sanitary sewer to install such monitoring and recording devices as may be necessary to monitor the following parameters:

- | | |
|--|------------------|
| 1. pH | 5. Temperature |
| 2. Dissolved Oxygen (DO) | 6. Conductivity |
| 3. Total Carbon (TC) | 7. Specific Ions |
| 4. Oxidation-Reduction Potential (ORP) | |

- (9) Inspection. The inspectors, agents or representatives of the City of Austin charged with the enforcement of this Ordinance shall be deemed to be performing a governmental function for the benefit of the general public and neither the City of Austin, the Director, nor the individual inspector, agent or representative shall ever be held liable for any loss or damage, whether real or asserted, caused or alleged to have been caused as a result of the performance of such governmental function. The Director or his authorized representative upon presentation of his credentials:

- (a) shall have a right of entry without delay to, upon, or through any premises to gain access to an industrial waste source;
- (b) may at any reasonable time have access to any copy and any records required by this Ordinance pertaining to industrial wastes;
- (c) Inspect any monitoring equipment or method of pretreatment monitoring required by the Director and sample any effluents which

the owner or occupant of such source is required to sample under such clause.

- (10) **Accidental Discharges.** Each owner or occupant shall provide protection from the accidental discharge of prohibited waste or slug loads. Any owner or occupant requesting an Industrial Waste Permit for a new discharge shall submit a plan for providing protection for accidental discharges to the Director with his application for waste and wastewater services for the Director's review. The Director may not grant water and wastewater service prior to the submittal of this plan. Owner and occupants presently discharging industrial waste into the sewer system pursuant to an authorized industrial waste permit may be required to prepare a plan within six (6) months after the effective date of this section.

Such plan shall describe facilities, and/or operating procedures and notification procedures that will be used to provide such protection. Any facilities to be constructed to provide protection from accidental discharges shall be approved by the Director prior to construction of the facilities. Facilities to prevent accidental discharges shall be provided and maintained at the owner's or occupant's cost and expense.

- (a) Review and approval of such plans and operating procedures shall not relieve the industrial user from the responsibility to modify the users facility as necessary to meet the requirements of this Ordinance. In the case of an accidental discharge, it is the responsibility of the user to immediately telephone and notify the Director of the incident. The notification shall include the time and location of the discharge, type of waste, concentration of volume of waste, treatability of waste, toxic effect of waste to humans, if any, and corrective actions;
- (b) The user shall be required to submit to the Director or his designated representative, a written report describing the cause of the discharge and the measures taken by the user to prevent similar future occurrences. This letter must be postmarked within five (5) working days of the detection of the accidental discharge.

This notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as result of damage to the POTW, the environment, or any other damage to person or property; however immediate and written notification shall relieve the user of any fines, civil penalties or other liability which may be imposed by this Ordinance.

Failure to notify the Director of an accidental discharge shall result in legal action or discontinuation of utility service.

(11) Procedure for Hearing of Appeals.

- (a) Any person aggrieved by an interpretation of this Ordinance or by any decision or ruling of the Director under this Ordinance shall have the right to make an appeal to the City Council. Such appeal shall be perfected by giving a written notice containing the following information to the Mayor within thirty (30) days of the issuance of the decision or ruling of the Director:
 - (1) The name and address of the person making the appeal.
 - (2) The facts surrounding the particular ruling or refusal to make a ruling.
 - (3) The ruling, if any, of the Director.
 - (4) The reasons why such ruling should be set aside or, if the ruling was refused, why such ruling should be made.
- (b) The persons making the appeal shall send copies of such appeal to the Director and to the City Attorney.
- (c) Within a period of fifteen (15) days from the filing of the appeal with the City Council, the Water and Wastewater Commission shall hear the appeal, together with the testimony of all parties concerned, and make a statement of fact and a recommendation thereon to the City Council within ten (10) days thereafter. In hearing such appeal, the Commission shall not consider waiving or setting aside the

requirements of this Ordinance but shall only consider the proper interpretation of its provisions.

(12) Emergency Discharge. If a person who is required to pretreat his waste pursuant to this Ordinance has an emergency caused beyond his control that effects his pretreatment program and/or facility and may cause his effluent to be in violation of his Industrial Waste Permit he may appeal to the Director for an Emergency Discharge Permit. Before the Director may issue an Emergency Discharge Permit the person shall submit plans and a compliance schedule showing what methods will be used to bring the discharge into compliance with his current Industrial Waste Permit and when this will be done. An Emergency Discharge Permit shall not be issued for longer than thirty (30) days and may be renewed only after a new application has been made. An accidental discharge does not require an Emergency Discharge Permit unless it was caused by a failure of the pretreatment facility and the failure is of a permanent nature.

(13) Rules & Procedures. The Director shall adopt rules and procedures (Procedures Manual) not inconsistent with this Ordinance, to effectuate the purpose and intent of this chapter. Such rules and procedures shall consider the quantity, quality and means of disposal of industrial wastes and the geographic, topographic, and physical construction factors and treatment methods in the waste collection and disposal systems and the beneficial uses of the water in these systems or of waters receiving discharge therefrom, and any other matter relevant to the implementation of this Ordinance. Failure to comply with such rules and procedures shall be a violation of this Ordinance as set out in PART II of this Ordinance.

Sec. 12-2-81. Monitoring for Surcharge and Removal Credit Determinations.

(1) Discharge Requirements and Surcharge. Persons generating abnormal industrial waste may discharge the waste into the sanitary sewer provided:

(a) the waste will not endanger or be harmful to the operating personnel of the sewer system;

- (b) the waste will not cause damage to the collection system;
 - (c) the waste will not impair the treatment processes; and,
 - (d) the person discharging the waste pays a monthly surcharge to the City of Austin Water and Wastewater Department in addition to the usual monthly sewer service charges.
- (2) Computation of Surcharge. For those abnormal industrial wastes having a COD concentration of 2.25 or more times that of the BOD concentration, the surcharge will be based on the COD category in lieu of the BOD category. Computations of surcharges shall be based on the following formula:

$$S = V \times 8.34 (A[BOD - 200] + B[SS - 200])$$

or

$$S = V \times 8.34 (C[\text{COD} - 450] + B[SS - 200])$$

S - Surcharge in dollars that will appear on the customers monthly bills.

V - Water consumption in millions of gallons during the billing period or the "wastewater average" in millions of gallons, whichever is less. The "wastewater average" is the average water use for December, January, and February billing periods.

8.34 - Pounds per gallon of water.

A - Unit charge in dollars per pound of BOD.

BOD - BOD strength in milligrams per liter (MG/L) by weight.

200 - Normal BOD strength in milligrams per liter (MG/L) by weight.

→ B - Unit charge in dollars per pound for SS.

SS - Suspended solids concentration in milligrams per liter (MG/L) by weight.

200 - Normal SS concentration in milligrams per liter (MG/L) by weight.

----- 'C - Unit charge in dollars per pound for
COD.

COD - COD strength in milligrams per liter
(MG/L) by weight.

450 - Normal COD strength in milligrams
per liter (MG/L) by weight.

If the strength or concentration for BOD, SS,
or COD is less than the normal strength for
that category, then there shall be no surcharge
for that category, nor shall there be credit
given to the total surcharge if the strength or
concentration of all three categories is less
than the normal. Surcharges payable under this
paragraph shall become due monthly after the
effective date of this Ordinance.

- (3) All flow rates, ~~BOD, COD and SS~~ values used in ~~determination of the surcharge of major waste-~~
water customers shall be reevaluated on an
annual basis and shall be adjusted to reflect
any increase or decrease in wastewater treat-
ment costs based on the previous years experi-
ence. However, if there is a major change in
the operation to cause changes in value, the
values may be increased or decreased during the
~~calendar year based on a study of changes or~~
actual measurements.
- (4) Removal Credits. Any industry wishing to apply
for removal credit as described in Title 40
Code of Federal Regulations Part 403 may do so
provided they assume responsibility for all
costs incurred including those by the City and
state this responsibility to the Director in
writing. Any removal credit granted shall be
in accordance with the procedures set forth in
Title 40 Code of Federal Regulations Part 403.
- (5) It shall be the responsibility of any person
discharging industrial waste into a sanitary
sewer to furnish the Director with drawings or
plans and specifications in such detail as he
may require to determine if any pretreatment
structure planned by such person, or in use by
such person, is suitable for the purpose
intended. However, the approval of such plans
by the Director will in no way relieve such
person of the responsibility for modifying the
structure once constructed as necessary to
produce an effluent acceptable to the Director
under the terms of this Ordinance.

Sec. 12-2-82. Classified Data and Confidential Information.

A person may not be required to disclose any classified data of the federal government or any confidential information relating to secret processes or economics of operation. If the information constitutes a trade secret or is commercial or financial information privileged or confidential by statute or judicial decision or if it is information which, if released, would give advantage to competitors, then the information is not open to public inspection and shall be kept in confidence by the City. A person submitting data or information may designate it as classified or confidential. However, the composition of any waste subject to the jurisdiction of this Ordinance may not be regarded as confidential information.

Sec. 12-2-83. Remedies.

- (1) Any person violating any of the provisions of this Ordinance shall become liable to the City for any expense, loss, or damage occasioned by the City by reason of such violation.
- (2) The purpose of this Ordinance being to promote the health, recreation, safety and welfare of the public, any discharge by a person contrary to the provisions of this Ordinance is declared to be a public nuisance and any other person may apply to any court of competent jurisdiction for any may obtain an injunction restraining such violation of this Ordinance. Such proceedings shall be guided by the rules of other injunction proceedings. The City Attorney is authorized to file suit for an injunction whenever he has reasonable cause to believe an ongoing violation of the ordinance exists.

Sec. 12-2-84. Other Sections Applicable.

Other sections of the City of Austin Code dealing with cross connections, items pertaining to safeguarding the water supply, items safeguarding the sanitary sewer system and waste traps remain applicable.

Sec. 12-2-85.

Compliance with this section does not exempt or excuse a person from complying with the provisions of the Texas Water Code or the

requirements of any applicable waste discharge permit, order, rule, or regulation issued by the Texas Department of Water Resources.

Water Commission

PART 2. Any person who violates any of the provisions of this Ordinance is guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding two hundred dollars (\$200.00) for each offense. Each day of violation constitutes a separate offense.

PART 3. That Ordinance No. 780406-B of the City of Austin and all ordinances of the City of Austin in conflict herewith be, and same are hereby, expressly repealed.

PART 4. If any provision, section, sentence, clause or phrase of this Ordinance, or the application of same to any person or set of circumstances if for any reason held to be unconstitutional, void or invalid (or for any reason unenforceable), the validity of the remaining portion of this Ordinance or its application to other persons or sets of circumstances shall not be affected thereby, it being the intent of the City Council of the City of Austin in adopting and of the Mayor in approving this Ordinance, that no portion hereof or provision or regulation contained herein shall become inoperative or fail by reason of any unconstitutionality or invalidity of any other portion, provision or regulation.

PART 5. That an emergency being apparent for the preservation of the safety, health and general welfare of the public requires that the rule requiring the reading of ordinances on three (3) separate days be, and the same is hereby, suspended, and it is therefore ordained that this Ordinance shall become effective upon final passage as provided by the City Charter of the City of Austin.

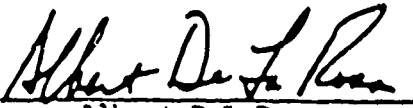
PASSED AND APPROVED:

December 9, 1982

S
S
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S


Carole Keeton McClellan
Mayor

APPROVED:


Albert DeLaRosa
City Attorney

ATTEST:


Grace Monroe
City Clerk

SN:scg
09DEC82

APPENDIX C
CHEMICAL DISPOSAL SURVEY FORM

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PLEASE HAVE THIS FORM READY FOR PICKUP BY:

SHOP:

BLDG:

CONTACT:

AUTOVON:

Please fill out this form as accurately and completely as possible. If you have any questions on filling it out, please call Maj Ng or Lt Zimmer at 3056

Examples:

	Tank Capacity	Change Out Frequency	Method of Disposal
PD-680 used in tank	60 gal	4/year	55-gal drum

Comments: 1/2 gal of MEK per month is used as a wipe on/wipe off process for parts cleaning. None is disposed of.

OILS & FLUIDS

	Amt of Waste	Disposal Method
Brake Fluid	6 gal	placed in
Transmission Fluid	10 gal	same 600-gal
Hydraulic Fluid	3 gal	bowser
Motor Oil	50 gal	500-gal UGT
Synthetic Oil	8 gal	55-gal drum

QUESTIONS: If question does not apply to this shop put "N/A" beside it.

1. Does this shop have any underground storage tanks? _____

If yes: How many? _____

Capacity? _____

What is stored in the tank? _____

How often is it cleaned out? _____

Has it ever been leak-tested? _____

2. Do the floor drains of the shop lead to an oil/water separator? _____

If yes: How often is it cleaned out? _____

3. Does the shop have any Safety Kleen units? _____

If yes: How many? _____

Tank capacity? _____

How often are they serviced? _____

4. What does the shop do with dirty rags? _____

5. What does the shop do with used "Speedy Dry"? _____

6. Describe shop activities and responsibilities below:

PAINT WASTE AND THINNERS**PAINTS****Amount of Waste
generated/month****Disposal
Method**

Latex

Polyurathane

Enamel

Other

Comments

THINNERS (list below)

Comments

STRIPPERS

Name of Stripper

National
Stock #Amount of Waste
per MonthOR Tank
SizeChange
Out Freq

Comments

ACIDS

Name of Acid	Manufacturer	Amount of Waste generated/month	Method of Disposal
--------------	--------------	------------------------------------	-----------------------

Comments

BATTERIES

Type of Battery	#/Month	Neutralized in Shop or Turned in Wet
-----------------	---------	---

Comments:

SOAPS/CLEANERS

Name of Soap	Dilution Ratio	National Stock#	Amt Used / month	Disposal Method
--------------	----------------	-----------------	---------------------	--------------------

Comments

OILS AND FLUIDS

Disposal Method

Transmission Fluid

Hydraulic Fluid

Motor Oil

Synthetic Oil

Other

Comments

SOLVENTS/DEGREASANTS

Name of Chemical	Amt. of Waste OR generated/mo.	Tank Size	Change Out Freq	Disposal Method
------------------	-----------------------------------	--------------	--------------------	--------------------

Carbon Remover

PD-680 used in tank

Pd-680 used on washrack

Other:

Comments

PHOTO CHEMICALS

Name of Chemical	Manufacturer	Amt/mo	OR Tank Change Size Out	freq	Disposal Method
------------------	--------------	--------	----------------------------	------	--------------------

Is the fixer processed through a silver recovery unit before disposal? _____

NDI Chemicals

Name of Chemical	Manufacturer	National Stock #	Tank Size	Change Out Freq	Disposal Method
------------------	--------------	------------------	-----------	-----------------	-----------------

Emulsifier

Dye Penetrant

Developer

Comments

FUELS

Name of Fuel	Amount/Month	Disposal Method
--------------	--------------	-----------------

ANTIFREEZE

Amount/Month	Disposal Method
--------------	-----------------

OTHER CHEMICALS (Please list any chemicals that contain phenols)

Name of Chemical	Manufacturer	National Stock #	Tank Size	Change Out Freq	Disposal Method
------------------	--------------	---------------------	--------------	--------------------	--------------------

Signature of person filling out this
form _____

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APPENDIX D

SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE

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SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY

WASTE: Oil & Fluid

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
602 TACCS Vehicle Maint	Motor Oil	384	DNH
67 EMS AGE	Motor Oil	600	DNH
67 CSG Auto Hobby	Transmission Fluid	24	AGT
67 CRS Jet Repair	7808 Oil	120	DNH
57 TRANS Heavy Vehicle Maint	Brake Fluid	24	DNH
67 CRS Jet Repair	Hydraulic Fluid	96	DNH
67 TRANS Heavy Vehicle Maint	Transmission Fluid	180	DNH
602 TACCS Vehicle Maint	Transmission Fluid	12	DNH
67 CSG Auto Hobby Shop	Motor Oil	3600	AGT
602 TACCS Vehicle Maint	Hydraulic Fluid	60	DNH
67 TRANS Refueling Maintenance	Motor Oil	120	DNH
67 TRANS General/Special Maint	Transmission Fluid	60	DNH
602 TACCS AGE	7808 Oil	48	DNH
67 TRANS General/Special Maint	Hydraulic Fluid	240	DNH
602 TACCS Vehicle Maint	Brake Fluid	36	DNH
67 TRANS General/Special Maint	Motor Oil	2400	DNH
67 TRANS Heavy Vehicle Maint	Hydraulic Fluid	180	DNH
67 EMS AGE	Hydraulic Fluid	1200	DNH
67 CES Power Production	Motor Oil	360	DNH
67 CSG Auto Hobby	Brake Fluid	12	AGT
924 TFG AGE	Hydraulic Fluid	60	DNH
67 TRANS Heavy Vehicle Maint	Motor Oil	180	DNH
67 EMS AGE	7808 Oil	3000	DNH
67 EMS NDI	Oil	240	DNH
924 TFG Jet Engine	Hydraulic Fluid	216	DNH
924 TFG AGE	Motor Oil	300	DNH
67 CRS Test Cell	7808 Oil	120	DNH
924 TFG AGE	7808 Oil	600	DNH
924 TFG Jet Engine	7808 Oil	264	DNH
712 ASOC Vehicle Maint	Motor Oil	480	DNH
602 TACCS AGE	Motor Oil	24	DNH
TOTAL:		15240	

WASTE: Paint, Thinner and Strippers

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
602 TACCS Vehicle Maint	Thinner	48	D
67 EMS Corrosion Control	MEK	300	D
602 TACCS Vehicle Maint	Paint	192	D
67 EMS Corrosion Control	Thinner	120	D
67 TRANS Allied Trades	Thinner	180	D
67 TRW Regional CC	Paint	114	D
67 EMS Corrosion Control	Poly Paint	180	D
67 TRANS Allied Trades	Paint	144	D
67 TRW Regional CC	Stripper	360000	UGT
67 CES Protective Coating	Stripper	114	D
67 CES Protective Coating	Latex Paint	12	REC
67 EMS Corrosion Control	Aerosol Stripper	114	UIP
67 CES Protective Coating	Paint & Thinner	36	D
712 ASOC Vehicle Maint	Paint	48	D
712 ASOC Vehicle Maint	Thinner	72	D
		TOTAL:	351332

WASTE: Fuel

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
67 CRS Jet Repair	JP-4	120	REC
General/Special Maint	Fuel	120	REC
712 ASOC Vehicle Maint	Fuel	240	REC
67 TRANS Refueling Maintenance	JP-4	72	REC
924 TFC Jet Engine	JP-4	360	REC
602 TACCS AGE	Fuel	120	REC
67 CRS Test Cell	JP-4	500	DNH
67 CRS Fuel Systems	JP-4	1200	REC
		TOTAL:	2732

WASTE: Antifreeze

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
67 CES Power Production	Antifreeze	360	DNH
712 ASOC Vehicle Maint	Antifreeze	120	DNH
67 EMS AGE	Antifreeze	600	DD
602 TACCS AGE	Antifreeze	72	DNH
67 TRANS General/Special Maint	Antifreeze	180	DNH
67 TRANS Heavy Vehicle Maint	Antifreeze	120	DNH
602 TACCS Vehicle Maint	Antifreeze	120	DNH
		TOTAL:	1572

WASTE: Soap

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
67 TRANS General/Special Maint	Aircraft Soap	660	OWS
67 EMS Corrosion Control	Aircraft Soap	1320	OWS
67 CSG Auto Hobby	Aircraft Soap	96	OWS
712 ASOC Vehicle Maint	Aircraft Soap	300	OWS
		TOTAL: 2376	

WASTE: Batteries

SHOP	WASTE	QTY (#/YR)	DISPOSAL
602 TACCS AGE	Batteries	36	NDD
67 TRANS General/Special Maint	Batteries	168	NDD
712 ASOC Vehicle Maint	Batteries	48	NDD
602 TACCS Vehicle Maint	Batteries	72	NDD
67 EMS AGE	Batteries	48	NDD
67 CSG Auto Hobby	Batteries	120	REC
67 CES Power Production	Batteries	72	NDD
924 TFG AGE	Batteries	48	NDD
67 CRS Electrical Systems	Batteries	180	NDD
67 TRANS Heavy Vehicle Maint	Batteries	36	NDD
		TOTAL: 828	

WASTE: Rags

SHOP	WASTE	DISPOSAL
712 ASOC Vehicle Maint	Rags	LE
602 TACCS AGE	Rags	LE
67 CRS Jet Repair	Rags	LE
67 EMS Wheel and Tire	Rags	LE
67 EMS Corrosion Control	Rags	D
67 TRANS Refueling Maintenance	Rags	LE
602 TACCS Vehicle Maint	Rags	LE
67 TRANS General/Special Maint	Rags	T
924 TFG AGE	Rags	T
67 CSG Auto Hobby	Rags	LE
67 CRS Fuel Systems	Rags	LE
67 EMS AGE	Rags	LE
67 CES Power Production	Rags	T
67 CRS Test Cell	Rags	LE

WASTE: NDI

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
67 EMS NDI	Emulsifier	440	D
67 EMS NDI	X-Ray Developer	240	DD
67 EMS NDI	X-Ray Fixer	240	SRDD
67 EMS NDI	Dye Penetrant	440	D
		TOTAL:	1360

WASTE: Solvent

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
924 TFG AGE	140 Solvent	660	DNH
924 TFG Jet Engine	Citrikleen	660	OWS
67 CSG Auto Hobby	140 Solvent	0	REP
602 TACCS Vehicle Maint	Citrikleen	60	OWS
67 CRS Jet Repair	Citrikleen	660	OWS
67 EMS Wheel and Tire	140 Solvent	590	UGT
67 TRANS Heavy Vehicle Maint	140 Solvent	60	DNH
67 EMS AGE	Citrikleen	120	OWS
67 EMS Corrosion Control	140 Solvent	1980	OWS
67 TRANS General/Special Maint	PD-680	220	DNH
67 CRS Test Cell	Citrikleen	240	OWS
924 TFG AGE	Citrikleen	660	OWS
		TOTAL:	5910

LEGEND: T - TRASH ACT - ABOVEGROUND TANK
 D - DRUMMED HAZ WASTE UGT - UNDERGROUND TANK
 DD - DOWN DRAIN UIP - USED IN PROCESS
 LE - LINEN EXCHANGE OWS - OIL/WATER SEPARATOR
 REC - RECYCLED NDD - NEUTRALIZED THEN DOWN DRAIN
 DNH - DRUMMED NONHAZ WASTE
 SRDD - SILVER RECOVERY THEN DOWN DRAIN

APPENDIX E
SUMMARY OF WASTES DISPOSED AS HAZARDOUS WASTE

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WASTE DISPOSED AS HAZARDOUS WASTE AT BERGSTROM AFB

Type of Waste: Paint, Thinner & Stripper

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
67 CES Protective Coating	734	Paint & Thinner	36
47 TRANS Allied Trades	1806	Paint	144
. TRANS Allied Trades	1806	Thinner	180
602 TACCS Vehicle Maint	4577	Paint	192
712 ASOC Vehicle Maint	400	Paint	48
602 TACCS Vehicle Maint	4577	Thinner	48
67 EMS Corrosion Control	1609	MEK	300
67 CES Protective Coating	734	Stripper	NQ
712 ASOC Vehicle Maint	400	Thinner	72
67 EMS Corrosion Control	1609	Poly Paint	180
67 TRW Regional CC	1608	Paint	NQ
67 EMS Corrosion Control	1609	Thinner	120
67 TRW Regional Corrosion Control	1608	Stripper	360000
TOTAL:			361320

Type of Waste: Rags

SHOP	BLDG	PRODUCT	QTY/YR
67 EMS Corrosion Control	1609	Rags	NQ

Type of Waste: NDI

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
67 EMS NDI	1615	Emulsifier	440
67 EMS NDI	1615	Dye Penetrant	440
TOTAL:			880

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APPENDIX F
WASTEWATER CHARACTERIZATION ANALYTICAL RESULTS

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ANALYTICAL RESULTS FOR ALL SAMPLE SITES

TEMPERATURE, pH, CHEMICAL OXYGEN DEMAND (COD), BIOCHEMICAL OXYGEN DEMAND (BOD5), AND NON-FILTERABLE RESIDUE (TSS)

Parameter

Site	Temp (oC)	pH	COD (mg/l)	TSS (mg/l)	BOD (mg/l)	BOD/COD
1 Day 1	5	7.26	560	44	477.50	0.85
1 Day 2	6	7.51		1	602.09	
2 Day 1	5	7.29	1090	51	665.17	0.61
2 Day 2	7	8.05		28	253.42	0.23
3 Day 1	7	6.95	750	12	291.99	0.39
3 Day 2	12	7.09		15	346.69	0.46
4 Day 1	9	7.65	1510	14	191.91	0.13
4 Day 2	13	7.30		12	189.75	0.13
5 Day 1	6	6.99	800	4	160.06	0.20
5 Day 2	7	6.95		7	148.66	0.19
6 Day 1	9	6.74	640	9	151.36	0.24
6 Day 2	13	7.30		10	238.62	0.37
7 Day 1	13	7.37	575	1	139.17	0.24
7 Day 2	12	6.93		2	108.90	0.19
8 Day 1	5	7.68	410	17	180.77	0.44
8 Day 2	6	7.38		8	221.98	0.54
9	12	8.30	500	7	181.45	0.36
10	21	6.03	750	23	799.13*	
11	11	8.12	1200	128	333.40	0.28
12	15	8.59	280	4	687.50*	
13	9	8.46	700	30	382.93	0.55
14	18	6.52	800	114	1054.15*	
15	9	7.28	310	<1	132.95	0.43
16	9	7.58	280	4	---	
17	7	8.30	50	<1	45.25	0.91
18	15	8.28	490	32		
19	9	8.46	257	19		
20	13	7.30	460	35		

21	11	8.24	228	13	
22	14	8.39	452	10	
23	17	8.26	220	19	
24	12	8.35	500	116	
25	5	7.26	560	44	
26	11	8.24	228	13	
27	20	7.7	866	16	
28	18	7.64	180	14	
29	19	7.47	2600	12	
30	20	7.70	465	74	
31	20	8.82	1375	43	
33	21	7.70	280	5	
35	19	7.47	2600	12	
36	21	8.24	650	40	
37	19	6.05	10500	81	
39	--	--	--	<1	60.93

* BOD levels greater than the COD levels could be caused by analytical error.

TOXIC METAL RESULTS (mg/l)

Metal	As	Ba	Cd	Cr	Cu	Fe	Mn	Hg	Ni
Site									
7 Day 1	---	---	---	---	---	0.318	---	<.001	---
9	---	---	---	---	---	0.474	---	---	---
18	---	---	---	---	---	0.872	0.190	---	---
19	---	---	---	---	---	0.259	---	---	---
21	---	0.250	---	---	---	0.284	---	---	---
23	---	---	<0.01	0.119	<0.02	<0.02	<0.05	---	---
26	---	0.250	---	---	---	0.284	---	---	---
28	---	---	---	---	---	0.808	---	<.001	---
29	---	0.229	0.149	2.178	---	7.490	0.293	---	---
31	---	---	---	---	---	1.284	---	0.0024	---
33	---	---	---	---	---	1.215	---	<.001	---
35	---	0.229	0.149	2.178	---	7.490	0.293	---	---
36	---	---	---	0.226	---	8.695	---	<.001	---
37	---	0.270	---	---	---	77.60	1.391	<.001	---

	Zn	Ca	Mg	Al	Be	Co	Mo	Ti	V
7 Day 1	---	0.268	0.218	0.500	---	---	---	---	0.128
9	---	0.0327	0.0268	1.390	---	---	---	6.377	0.132
18	0.538	0.0726	0.0263	1.134	---	---	---	---	0.139
19	0.148	0.0302	0.0244	0.183	000	000	000	000	0.163
21	0.181	0.0299	0.0235	0.104	---	---	---	---	0.156
23	0.073	---	---	---	---	---	---	---	---
26	0.181	0.0299	0.0235	0.104	---	---	---	---	0.156
28	0.200	0.0490	0.0256	0.438	---	---	---	---	0.160
29	1.153	0.1165	0.0374	2.529	---	---	---	---	0.154

31	0.522	0.0354	0.0248	0.277	---	---	0.162	0.354	0.162
33	0.187	0.0332	0.0222	0.634	---	---	---	---	0.118
35	1.153	0.1165	0.0374	2.529	---	---	---	---	0.154
36	0.426	0.0418	0.0243	7.540	---	---	---	---	---
37	0.139	1.7694	0.0368	0.582	---	---	---	---	0.217

DETECTABLE SAMPLING RESULTS FOR VOLATILE ORGANIC AND VOLATILE AROMATIC COMPOUNDS

Date Collected	Site	Compound	Conc. (ug/l)
8 Mar 89	7	Methylene Chloride	1.1
		Benzene	3.2
		Toluene	7.6
8 Mar 89	21	Methylene Chloride	1.1
8 Mar 89	22	Methylene Chloride	0.8
		Toluene	16.0
8 Mar 89	26	Methylene Chloride	1.1
9 Mar 89	23	Methylene Chloride	1.4
9 Mar 89	25	Toluene	4.5
11 Mar 89	17	Chloroform	0.6
14 Mar 89	29	Methylene Chloride	320.0
		Toluene	10.0
14 Mar 89	31	Cis1, 3-Dichloropropene	14.0
		Methylene Chloride	9.0
14 Mar 89	36	Chloroform	0.4
		Ethylbenzene	18.0
14 Mar 89	33	Methylene Chloride	0.5
14 Mar 89	37	1,1,2,2-Tetrachloroethane	18.0
		1,1,1-Trichloroethane	18.0
14 Mar 89	35	Methylene Chloride	320.0
		Toluene	10.0

SAMPLING RESULTS FOR OILS AND GREASES AND TOTAL EXTRACTABLE HYDROCARBONS

Parameter	Oils and Greases (mg/l)	Petroleum Hydrocarbons (mg/l)
Site		
6	79.2	---
7	26.0	23.0
8	13.7	---
9	13.9	---
10	107.2	---
11	16.5	---
12	6.2	---
14	120.8	---
17	6.5	---
20	84.8	80.0
21	54.0	49.0
22	108.0	107.0
23	189.0	170.0
26	54.0	49.0
27	370.0	340.0
28	60.0	---
29	91.6	83.0
31	448.0	389.0
33	8.0	6.0
35	91.6	83.0
36	8.0	7.0
37	80.0	67.0
39	11.8	10.0

DETECTABLE SAMPLING RESULTS FOR VARIOUS PARAMETERS (Cyanide, Boron, Pesticides, MBAS, and Sulfates) *

Parameter	Cyanide	Boron	Pesticides	MBAS	Sulfates
Site					
7	0.01	1.0	**	5.9	100.0
18			**		
29	0.65				
33	0.02	0.80			
37				1.7	
38				18.0	
39				1.7	

* Results expressed in mg/l

** Samples lost in laboratory

COMPLETE DETECTABLE SAMPLING RESULTS FOR THE CITY OF AUSTIN MANHOLE

BOD5	
Day 1	110.67 mg/l
Day 2	97.30 mg/l
COD	575 mg/l
pH	
Day 1	7.37
Day 2	6.93
Temperature	
Day 1	13 oC
Day 2	12 oC
Nonfilterable Residue	1.0 mg/l
Oils and Greases	26.0 mg/l
Petroleum Hydrocarbons	23.0 mg/l
Volatile Halocarbons	
Methylene Chloride	1.1 ug/l
Volatile Aromatics	
Benzene	3.2 ug/l
Toluene	7.6 ug/l
ICP Metals	
Fe	0.318 mg/l
Ca	0.268 mg/l
Mg	0.218 mg/l
Al	0.500 mg/l
V	0.128 mg/l
Mercury	<0.001 mg/l
Cyanide	0.01 mg/l
Boron	1.0 mg/l
Sulfates	100.0 mg/l
MBAS	5.9 mg/l
Fluoride	1.06 mg/l
Purgeable Organics	
Toluene	Trace Amount
Radioactivity	
Cesium 134	<12.0 pci/l
Cesium 137	< 8.8 pci/l
Chromium 51	<60.0 pci/l
Cobalt 60	<11.0 pci/l
Europium 152	<23.0 pci/l

Europium 154	<12.0 pci/l
Gross Alpha	< 0.3 pci/l
Gross Beta	< 7.1 pci/l
Niobium 95	< 7.7 pci/l
Ruthenium 103	< 2.8 pci/l
Ruthenium 106	<62.0 pci/l
Zirconium 95	< 6.8 pci/l
Phosphorus	4.3 mg/l
Acid/Base/Neutrals	
Phenol	14.0 ug/l
Diethyl phthalate	14.0 ug/l
Di-n-butyl phthalate	4.3 ug/l
Benzyl-butylphthalate	7.8 ug/l
Bis(2-ethylhexyl)phthalate	65.0 ug/l
Nonhalogenated Volatile Organics	
Methyl Ethyl Ketone	<5.00 ug/l

APPENDIX G
BERGSTROM AFB WASTE ANALYSIS PLAN

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TABLE VI - I
SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY (BLDG)</u>	<u>NAME OF WASTE/ MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
67 TRW Corrosion Control (B-1609)	Waste Polyurethane Paint	Drum	Prohibited F Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, F-solvent Constituents & Metals Presence	ASTM Std D-93-80, EP Toxicity Test (46 FR 35247), SW-846, Methods 8015 & 8240, Toxicity Characteristic Leaching Procedure (51 FR 40572)	Coliwsa	Once a year
67 TRW Propulsion Branch (B-1612)	Tough Waste	Drum	Ignitability, Cresylic Acid, Orthodichloro- benzene	Verify Ignitable Character, Verify Cresylic Acid and Ortho- dichlorobenzene Presence	ASTM Std D-93-80, SW-846, Methods 8040, 8250, 8010, 8120 & 8250, Toxicity Characteristic Leaching Procedure (51 FR 40572)	Coliwsa	Once a year
67 TRW Wheel and Tire Shop (B-1610)	Waste Paint Stripper	Drum	Ignitability, Tetrachloro- ethylene	Verify Ignitable Character, Verify Tetrachloro- ethylene Presence	ASTM Std D-93-80, EPA Std Methods Toxicity Characteristic Leaching Procedure (51 FR 40572)	Coliwsa	Once a year
	Waste PD680/ Solvent 140 Sludge	Drum	Cadmium Chromium, Lead	Verify Cadmium, Chromium & Lead, Concentration	EP Toxicity Test (46 FR 35247)	Composite of 4 Grab Samples	Once a year
67 TRW Vehicle Maintenance (B-1801)	Waste Polyurethane Paint	Drum	Prohibited F Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, F-Solvent Constituents & Metals Presence	ASTM Std D-93-80 EP Toxicity Test (46 FR 35247), SW-846, Methods 8015, & 8240 Toxicity Characteristic Leaching Procedure (51 FR 40572)	Coliwsa	Once a year

*In the absence of EPA standards, accepted industry standards.

SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY (BLDG)</u>	<u>NAME OF WASTE/ MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
67 TRW Refueling Vehicle Maintenance (B-635)	O/W Separator Sludge	Drum	Ignitability	Verify Ignitable Character	ASTM Std D-93-80	ASTM Std D140-70	After containerizing
67 TRW NDI Lab (B-1615)	Fluorescent Penetrant	Drum	Prohibited F-Listed Wastes	Verify Composition and Classification	40 CFR 261 Appendix III Table 1, Toxicity Characteristic Leaching Procedure (51 FR 40572)	ColiWasa	Once a year
67 CSG/ CE Paint Shop (B-734)	Waste Lacquer Paint Sludge	Drum	F-Listed Wastes, Ignitability, Cadmium, Lead Chromium	Verify Ignitable Character, F-solvent constituents & Metals Presence	ASTM Std D-93-80, EP Toxicity Test (46 FR 35247), Toxicity Characteristic Leaching Procedure (51 FR 40572)	Composite of 4 Grab Samples	Once a year
	Waste Oil Based Paint	Drum	F-Listed Wastes, Ignitability, Cadmium, Lead Chromium	Verify Ignitable Character, F-solvent constituents & Metals Presence	ASTM Std D-93-80, EP Toxicity Test (46 FR 35247), Toxicity Characteristic Leaching Procedure (51 FR 40572)	Composite of 4 Grab Samples	Once a year

SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY (BLDG)</u>	<u>NAME OF WASTE/MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
67 CSG/CE Liquid Fuels Maintenance (B-712)	Tank Cleaning Sludge	Drum	Ignitability, lead, & water content, hydrocarbon, sediment	Verify Ignitable Characteristics to Support DRMO Turn-in	ASTM Std D-93-80, Visual Observation of Separation in Graduated Cylinder	ASTM Std D140-70	After containerizing
	Tank Cleaning Rags	Drum	Ignitability	Verify Ignitable Characteristics	EPA Std Methods*	Grab Sample	After containerizing
10/924 TFG/Wheel & Tire Shop (B1dg 4536)	Degreasing Vat Sludge	Drum	Cadmium, Chromium, Lead	Verify Cadmium, Chromium, lead Character	EP Toxicity Test (46 FR 35247)	Composite of 4 Grab samples	Once a year
924 TFG/AGE Shop (B1dg 4562)	Methyl Ethyl Ketone and Paint Waste	Drum	Prohibited F-Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, F-solvent Constituents & Metals Presence	SV-846 Methods ASH Std D-93-80, EP Toxicity Test (46 FR 35247) Toxicity Characteristic Leaching Procedure (51 FR 40572)	Coliways	Once a year
	Solvent 140 Vat sludge	Drum	Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, Metals	ASTM Std D-93-80 EP Toxicity Test (46 FR 35247)	Coliways	Once a year or prior to disposal

*In the absence of EPA standards, accepted industry standards.

SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY</u> (BLDG)	<u>NAME OF WASTE/ MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
602 TACC/ Vehicle Maint (Bldg 4577)	Waste Polyurethane Paint	Drum	Prohibited F Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify F-Solvent Constituents, Ignitability Character, Metals Presence	SW-846, Methods 8020, 8024, 8015 8240, ASTM Std D-93-80, EP Toxicity Test (46 FR 35247) Toxicity Characteristic Leaching Procedure (51 FR 40572)	Collwasa	Once a year
602 TACC/ AGE Maint (Bldg 4580)	Waste Polyurethane Paint	Drum	Prohibited F Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, F-solvent Constituents & Metals Presence	EP Toxicity Test (46 FR 35247) Toxicity Characteristic Leaching Procedure (51 FR 40572)	Collwasa	Once a year
67 CSG/ Seal? Arms Range (Bldg 1810)	"Back Trap" Dust	Drum	Lead	Verify Lead Character	EP Toxicity Test (46 FR 35247)	Grab Sample	Once a year
12 TIS/LGKM (Bldg 4588)	Waste Polyurethane Paint	Drum	Prohibited F Listed Wastes, Ignitability, Cadmium, Chromium, Lead	Verify Ignitable Character, F-solvent Constituents & Metals Presence	ASTM Std D-93-80, EP Toxicity Test (46 FR 35247), Toxicity Characteristic Leaching Procedure (51 FR 40572)	Collwasa	Once a year
67 TRH/MAE (Bldg 4865)	Waste Munitions		Reactive	By Definition	N/A	N/A	N/A

in n

SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY (Bldg)</u>	<u>NAME OF WASTE/MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
712 ASOC/ LGKV (Bldg 400)	Waste Dope and Lacquer Thinner & Paint	Drum	Prohibited F-Listed Wastes, Cadmium, Chromium Lead, Ignitability	Verify Ignitable Character, F-solvent Constituents & Metals Presence	ASTM Std D-93-80 EP Toxicity Test (46 FR 35247) Toxicity Characteristic Leaching Procedure	Collinsa	Once a year
Base-wide	Waste Oil Bowlers	Drum	Total Halogens, Ignitability, Cadmium, Lead, Chromium, % Water	Verify oil is not being mixed with hazardous wastes, Support DRMO Turn-in	SW-846, ASTM Std D-93-80, EP Toxicity Test (46 FR 35247)*	Collinsa	Once a year
67 TRW/ Supply: Fuels Branch (FAC 590)	Waste Synthetic Oil, Waste JP-4, Waste Engine Oil/Solvent (Both liquid and sludge)	Tanks B-5, B-9, B-11	F-listed wastes, Total Halogens, Ignitability, Corrosivity, Reactivity, Arsenic, Cadmium, Lead, Chromium & Composition	Verify oils & fuel are not being mixed with hazardous wastes	ASTM Std D-93-80, SW-846.2.1.2, SW-846.2.1.3 EP Toxicity Test (46 FR 35247)* Toxicity Characteristic Leaching Procedure (51 FR 40572)	Weighted Bottle (Liquids)	As required
	Slop Waste Oil	Tank B-7	Total Halogens, Ignitability, Corrosivity, Reactivity, Arsenic, Cadmium, Chromium, Lead, & Composition, Prohibited F Listed Waste	Verify Ignitable Character, F-solvent Constituents & Metals Presence	ASTM Std D-93-80, EP Toxicity Test (46 FR 35247) SW-846, Methods 8015, 8240, SW-846 2.1.2, SW-846 2.1.3, Toxicity Characteristic Leaching Procedure (51 FR 40572)	Weighted Bottle (Liquids)	As required

SCOPE AND FREQUENCY OF ANALYSIS

<u>FACILITY (BLDG)</u>	<u>NAME OF WASTE/ MATERIAL</u>	<u>SAMPLING POINT</u>	<u>PARAMETER</u>	<u>RATIONAL FOR PARAMETER</u>	<u>TEST METHOD</u>	<u>SAMPLING METHOD</u>	<u>FREQUENCY OF ANALYSIS</u>
Main Lift Station	Wastewater	Lift Station Adjacent to Manhole No. 106	Note 1	F-Solvent Constituents	Toxicity Characteristic Leaching Procedure (51 FR 40572)	Composite of 24 Hrs	Quarterly

Note 1 - To be analyzed for carbon tetrachloride, tetrachloroethylene, trichloroethylene, methylene chloride, 1, 1, 1, - trichloroethane, chlorobenzene, 0-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl-ethyl ketone, carbon disulfide, isobutanol, pyridine, and chlorofluorocarbon solvents.

APPENDIX H
HAZARDOUS WASTE TRAINING PROGRAM

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DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 87TH COMBAT SUPPORT GROUP (TAC)

BENGTROM AIR FORCE BASE TX 78743-1880

REPLY TO
ATTN OF

DE

SUBJECT

Hazardous Waste Management Training

TO

12 TIS/LGM

1. SSgt Terry King completed annual training in hazardous waste management and spill response on 12 July 1988. This training fulfilled the annual training requirement mandated by the Resource Conservation and Recovery Act (RCRA) Regulations.

2. The training was taught by Stephen Whatley, an environmental engineer employed by ENTECH, Incorporated. The training program lasted 3 hours and included the following subjects:

- a. Introduction to RCRA
- b. Identification of Typical TAC RCRA Regulated Compounds
- c. Accumulation and Satellite Accumulation Point Management
- d. Containers and Container Management
- e. Container Marking and Labeling
- f. Record Keeping
- g. DRMO Turn-in Procedures
- h. Contingency Plans/Emergency Response
- i. Safety Considerations
- j. Fire Considerations

3. Record keeping is an important aspect of compliance with the hazardous waste regulations. Failure to comply with these regulations can result in fines of up to \$25,000 being levied upon the Base Commander for each day of non-compliance and imprisonment for up to one year. The hazardous waste regulations require that the accumulation point manager's record include the following:

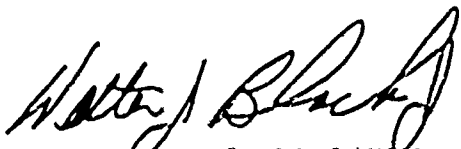
- a. Job title and position description;
- b. Record of introductory and continuing training; and

Readiness is our Profession

c. Records documenting training.

These records must be maintained for three years. They are to stay with the employee's records if transferred. Attached is a sample position description to be maintained in the employee's file. Document training on AF Form 971 and 55 for civilians, and AF Form 991 and 55 for military. A copy of this letter and the attached training certificate is necessary to document what was taught and by whom.

4. Thank you for your assistance and support of the hazardous waste program. Should you have any questions regarding hazardous waste, please contact Stephen Whatley at extension 2494.



WALTER J. BLACK, JR., Lt Col, USAF
Base Civil Engineer

2 Atch

1. Position Description
2. Training Certificate

Tactical Air Command



Certificate of Recognition IS AWARDED TO

SSGT TERRY KING
12 TIS/LGM

FOR

ANNUAL REVIEW TRAINING IN HAZARDOUS WASTE MANAGEMENT AND SPILL
RESPONSE IN ACCORDANCE WITH THE PROVISIONS OF THE RESOURCE
CONSERVATION AND RECOVERY ACT REGULATIONS (40 CFR 260-265) ON
12 JULY 1988

Stephen Whatley
STEPHEN WHATLEY
ENVIRONMENTAL ENGINEER
ENTECH, INCORPORATED

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APPENDIX I
HAZARDOUS WASTES TURN-IN PROCEDURES

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XII TURN-IN PROCEDURES

A. The Defense Reutilization and Marketing Office (DRMO, Bldg 624) is responsible for the sale, reclamation or disposal of all hazardous materials and wastes with the exception of the excluded items in DEQPPM 80-5 (See Appendix B).

B. Until the proposed DRMO conforming storage facility is completed, DRMO will accept paperwork custody, but not physical custody. However, for the waste to be removed off the base, DRMO has to have received the turn-in documents. The generating activity is responsible for preparing AF Form 2005.

C. The following procedures will be followed for the turn-in of all hazardous wastes:

1. The generating activity must properly package, and identify hazardous wastes prior to turn-in. The Disposal Turn-In Document (DTID) for processing hazardous wastes is AF Form 2005. An original and two copies of the DTID are required. A sample AF Form 2005 is shown in Figure XII-1.

2. After AF Form 2005 is completed, it will be handcarried to the Inspection Section of Base Supply (Building 810). After processing of the AF Form 2005, Base Supply will generate a 1348-1 disposal document. Upon notification by Base Supply, the generating activity will pickup the DD Form 1348-1 and two copies of AF Form 2005.

3. The generating activity will certify the DD Form 1348-1 and handcarry it to the Environmental Coordinator (Building 709) for coordination and processing. At the Environmental Coordinator's office the generator will obtain the hazardous waste CLIN and the container CLIN. This information must be handwritten in Block 1 of the DD Form 1348-1. Also, one copy of AF Form 2005 will be left in the Environmental Coordinator's office. After processing the DD Form 1348-1 through the Environmental Coordinator's office, the generating activity will then handcarry the form to the DRMO (Building 624). DRMO will inspect the DD Form 1348-1 to ensure compliance with regulations and that all required information is included on the form.

4. The generating activity is to prepare the paperwork within three days of filling a container. Should it be necessary to transfer the container from a satellite accumulation point or an accumulation point to the Interim TSD facility (between Buildings 1602 and 1610), DRMO must have accepted the DD Form 1348-1 disposal document prior to transferring the waste. In order to ensure that storage of the hazardous waste is in compliance with state and federal regulations, the generating activity should begin preparing the paperwork five days before the container will be filled. Submit a copy of the signed disposal document to the Interim TSD Facility Manager (67 TRW/MAEFC) and to the Base Environmental Coordinator (67 CSG/DEEV).

5. Prior to taking the drums to the Interim TDD Facility, the generating activity must either paint or use a grease pencil to mark the top of each of the drums with the disposal document number found in blocks 30-43 of the DD Form 1348-1.

D. AF Form 2005 shall be completed as follows for the turn-in of hazardous waste (refer to Figure XII-1).

1. Blocks 1-3. TRIC-Leave blank.
2. Blocks 4-7. Leave blank.
3. Block A - Enter the name and telephone number of the person filling out the AF Form 2005. Also enter the current Julian date.
4. Block B - Leave blank.
- *5. Blocks 8-11. Entry is always 9999.
6. Blocks 12-14. Entry is always PHW.
7. Blocks 15-18. Enter the Environmental Protection Agency Hazardous Waste Number.
- *8. Blocks 19-22. Leave blank.
9. Blocks 23-24. Unit of Issue - Enter the unit of issue of the item being turned in for hazardous waste disposal. This unit of issue must correspond to the unit price found in the DRMO disposal contract. Normally for liquid hazardous waste the unit of issue is GL (gallons) and LB (pounds) for solid hazardous waste.
10. Blocks 25-29. Quantity. Enter the quantity of hazardous waste. Use five digits.
11. Block C. Leave blank.
12. Blocks 30-35. Enter the letter R for the activity code and enter the organization shop code of the generating activity. The organization shop code is the same code used when ordering material from base supply.
13. Blocks 36-43. Leave blank (completed by base supply).
14. Block 44. Condition code. Entry is always H.
15. Block D. Leave blank.
16. Block E. Enter the Environmental Protection Agency hazardous waste number and the corresponding Texas Waste Code Number.

17. Blocks 45-50. Leave blank. (Note - any generators within the 67th Transportation Squadron or the 67th Civil Engineering Squadron will need to contact DEEV at Ext 2494 for information required).

18. Blocks 51-54. Leave blank.

19. Blocks 55-56. Entry is always 01.

20. Blocks 57-61. Leave blank.

21. Block 62. Entry is always 9.

22. Blocks 63-66. Leave blank.

23. Blocks 67-78. Entry is always 0000001ZZZZZ.

24. Block F. Enter the cost per unit for disposal of the hazardous waste (This is the price in the DRMO disposal contract. Contact 67 CSG/DEEV at Ext 2494 for this information).

25. On the back of the original AF Form 2005 write the parent National Stock Number (NSN) which produced the hazardous waste, the number of containers (Example-5 Drums), the type of containers (Example-55 Gallon Drum), and the type and estimated percentage of contaminants.

Figure XII-1
Disposal Turn-In Document

ISSUE/TURN-IN REQUEST	<table border="1"> <tr> <td colspan="2">TRIC</td> <td colspan="2">REQ. NO.</td> <td colspan="2">DATE</td> <td colspan="2">A. INSPECTOR, NAME, DATE (TIME)</td> </tr> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> <td colspan="2"></td> </tr> </table>							TRIC		REQ. NO.		DATE		A. INSPECTOR, NAME, DATE (TIME)		1	2	3	4	5	6	7			<table border="1"> <tr> <td colspan="14">B. INSPECTOR, NAME, STAMP, DATE (TIME)</td> </tr> </table>														B. INSPECTOR, NAME, STAMP, DATE (TIME)																																																																																																								
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AF FORM 2005 JUN 83 2005 PREVIOUS EDITION WILL BE USED.

U.S. G.P.O. 1985-471-382

APPENDIX J
MASTER LIST OF SHOPS

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MASTER LIST OF SHOPS

SHOP	CONTACT	BLDG	EXTENSION
67 CES			
Power Production	TSgt Mack	723	3770
Protective Coating	Mr Vargas	734	2512
67 CRS			
Electrical Systems	MSgt Ely	1610	3747
Jet Repair	SSgt Ashelman	1612	2411
Fuel Systems	MSgt Baird	4533	3674
Test Cell	TSgt Cumming	4576	3673
67 CSG			
Auto Hobby	MSgt Dartez	600	3425
67 EMS			
Corrosion Control	TSgt Brigham	1609	2051
Wheel and Tire	A1C Raymond	1610	2621
NDI	TSgt Yzaguirre	1615	2331
AGE	TSgt Writt	4548	3914
67 TRANS			
Refueling Maintenance	SSgt Norris	635	3341
Heavy Vehicle Maint	Sgt Hernandez	713	3621
General/Special Maint	SSgt Eakins	1801	3404
Allied Trades	SSgt Eakins	1806	3459
602 TACCS			
Vehicle Maintenance	SSgt Wiederhold	4577	4022
AGE	MSgt Terry	4580	2700
712 ASOC			
Vehicle Maintenance	TSgt Whiteside	400	2202
924 Tactical Fighter Group			
AGE	Mr Medina	4562	3663
Jet Engine	MSgt McKay	4589	2633

MASTER LIST OF SHOPS Cont'd

67 TRW

Corrosion Control

Mr McDuff

1608

3096

67 Medical Group

Hospital

Capt Houst

2700

3454

APPENDIX K
SUMMARY OF WASTE DISPOSAL PRACTICES BY SHOP

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DISPOSAL PRACTICES BY SHOP FOR BERGSTROM AFB

SHOP: 602 TACCS AGE, Building 4580

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Antifreeze	72	DNH
Rags	HQ	LE
Motor Oil	34	DNH
7808 Oil	48	DNH
Batteries	36	HDD
Fuel	120	REC
TOTAL: 300		

SHOP: 602 TACCS Vehicle Maint, Building 4577

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Motor Oil	384	DNH
Hydraulic Fluid	60	DNH
Thinner	48	D
Citrikleen	60	OWS
Paint	192	D
Antifreeze	120	DNH
Batteries	72	HDD
Rags	HQ	LE
Brake Fluid	36	DNH
Transmission Fluid	12	DNH
TOTAL: 984		

SHOP: 67 CES Power Production, Building 723

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Batteries	72	HDD
Rags	HQ	T
Motor Oil	360	DNH
Antifreeze	360	DNH
TOTAL: 792		

SHOP: 67 CRS Protective Coating, Building 734

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Stripper	NQ	D
Latex Paint	12	REC
Paint & Thinner	36	D
TOTAL: 48		

SHOP: 67 CRS Electrical Systems, Building 1610

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Batteries	180	HDD
TOTAL: 180		

SHOP: 67 CRS Fuel Systems, Building 4533

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	LE
JP-4	1200	REC
TOTAL: 1200		

SHOP: 67 CRS Jet Repair, Building 1612

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
CitriKleen	660	OWS
Rags	NQ	LE
7808 Oil	120	DNH
JP-4	120	REC
Hydraulic Fluid	96	DNH
TOTAL: 996		

SHOP: 67 CRS Test Cell, Building 4576

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	LE
CitriKleen	240	OWS
JP-4	600	DNH
7808 Oil	120	DNH
TOTAL: 960		

SHOP: 67 CSG Auto Hobby, Building 600

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Brake Fluid	12	ACT
Transmission Fluid	24	ACT
Rags	NQ	LE
Aircraft Soap	96	OWS
Batteries	120	REC
140 Solvent	0	REP
Motor Oil	3600	ACT
TOTAL: 3852		

SHOP: 67 EMS AGE, Building 4548

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	LE
Hydraulic Fluid	1200	DNH
7808 Oil	3000	DNH
Antifreeze	600	DD
Citrikleen	120	OWS
Batteries	48	NDD
Motor Oil	600	DNH
TOTAL: 5568		

SHOP: 67 EMS Corrosion Control, Building 1609

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
MEK	300	D
140 Solvent	1980	OWS
Poly Paint	180	D
Aircraft Soap	1320	OWS
Thinner	120	D
Rags	NQ	D
Aerosol Stripper	NQ	UIP
TOTAL: 3900		

SHOP: 67 EMS NDI, Building 1615

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Emulsifier	440	D
Oil	240	DNH
Dyr Penetrant	440	D
X-ray Developer	240	DD
X-ray Fixer	240	SRDD
TOTAL: 1600		

SHOP: 67 EMS Wheel and Tire, Building 1610

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	LE
140 Solvent	590	UST
TOTAL: 590		

SHOP: 67 TRANS Allied Trades, Building 1806

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Thinner	180	D
Paint	144	D
TOTAL: 324		

SHOP: 67 TRANS Heavy Vehicle Maint, Building 713

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Brake Fluid	24	DNH
Batteries	36	NDD
Transmission Fluid	180	DNH
140 Solvent	60	DNH
Motor Oil	180	DNH
Antifreeze	120	DNH
Hydraulic Fluid	180	DNH
TOTAL: 780		

SHOP: 67 TRANS Refueling Maintenance, Building 635

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Motor Oil	120	DNH
JP-4	72	REC
Rags	NQ	LE
TOTAL: 192		

SHOP: 57 TRW Regional CC, Building 1608

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Paint	NQ	D
Stripping	360000	UST
TOTAL: 360000		

SHOP: 712 ASOC Vehicle Maint, Building 400

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Fuel	240	REC
Antifreeze	120	DNH
Paint	48	D
Thinner	72	D
Batteries	48	NDD
Aircraft Soap	300	OWS
Motor Oil	480	DNH
Rags	NQ	LE
TOTAL: 1308		

SHOP: 924 TFG AGE, Building 4562

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	T
7808 Oil	600	DNH
140 Solvent	660	DNH
Batteries	48	NDD
Motor Oil	300	DNH
Citrikleen	660	OWS
Hydraulic Fluid	60	DNH
TOTAL: 2328		

SHOP: 924 TFG Jet Engine, Building 4589

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
JP-4	360	REC
7808 Oil	264	DNH
Hydraulic Fluid	216	DNH
Citrikleen	660	OWS
TOTAL: 1500		

SHOP: General/Special Maint, Building 1801

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Rags	NQ	T
PD-680	220	DNH
Motor Oil	2400	DNH
Transmission Fluid	60	DNH
Fuel	120	REC
Antifreeze	180	DNH
Batteries	168	NDD
Aircraft Soap	660	OWS
Hydraulic Fluid	240	DNH
TOTAL:		4048

LEGEND: T - TRASH AGT - ABOVEGROUND TANK
D - DRUMMED HAZ WASTE UST - UNDERGROUND STORAGE TANK
DD - DOWN DRAIN UIP - USED IN PROCESS
LE - LINEN EXCHANGE OWS - OIL/WATER SEPARATOR
REC - RECYCLED NDD - NEUTRALIZED THEN DOWN DRAIN
DNH - DRUMMED NONHAZ WASTE
SRDD - SILVER RECOVERY THEN DOWN DRAIN

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